Southern California's Computer Magazine June 25, 1990 • 71 FREE

MICROTIMES™

SPECIAL ISSUE FOR THE ENTREPRENEUR:

STARTUP SURVIVAL

SECTION BEGINS ON PAGE 50

CUSTOMER SUPPORT: PLAN NOW OR PAY LATER

"The easiest mistake to commit at the beginning of the whole process is to focus on the technology rather than on the needs of the people who will ultimately buy the product."

SHAREWARE MARKETING: TALES FROM THE FRONT

"There are quite a few authors supporting themselves quite well with shareware, and they all stress the importance of patience and persistence."

MS WORKS 2:

"You could do a great deal with no other program on your machine. I have seen a fair-sized mail-order business operated with nothing but Works."

STORY ON PAGE 32

MITSUBA NINJA 12V PORTABLE:

"This computer offers everything, but at a price considerably less than the competition's. These guys have thought of everything."

STORY ON PAGE 46

DVORAK:

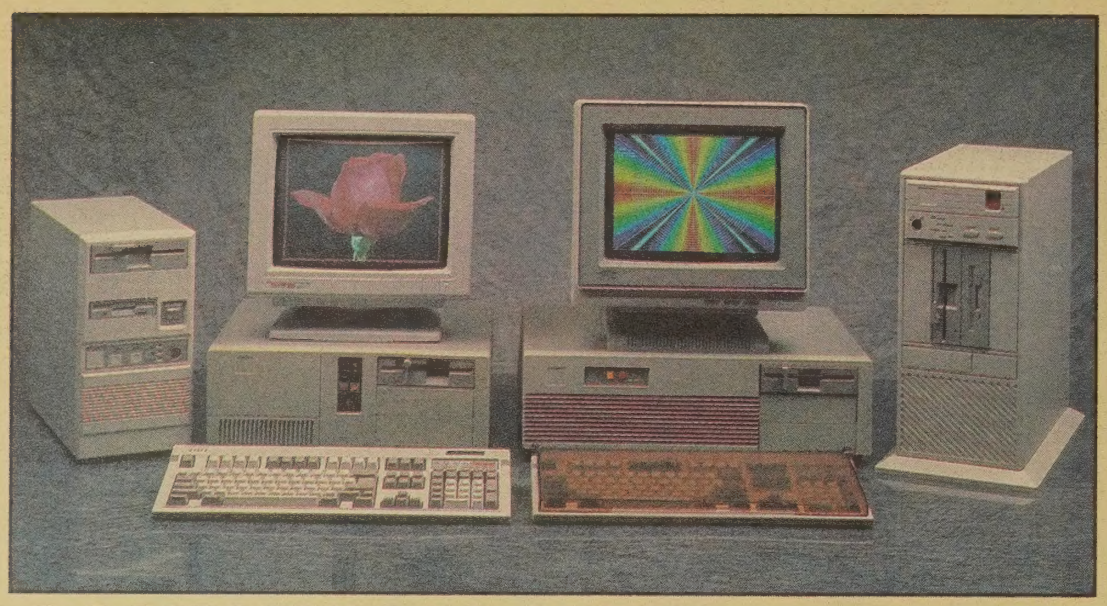
Press Release: "With Windows, users can jump from one task to another, with each in a different window." Dvorak: "Gee, just like the Amiga!"

STORY ON PAGE 130

COMPLETE 386SX SYSTEM $1295

WITH 40MB IDE HARD DRIVE ! ONLY

Standard equips with the latest technology of IDE hard drive, gives you ultimate performance in its class. (Performance: TRK: TRK seek 3.75 MS, DOS file transfer speed 145 K/sec) more than 300% faster than the past technologies — MFM & RLL.



Standard System Feature

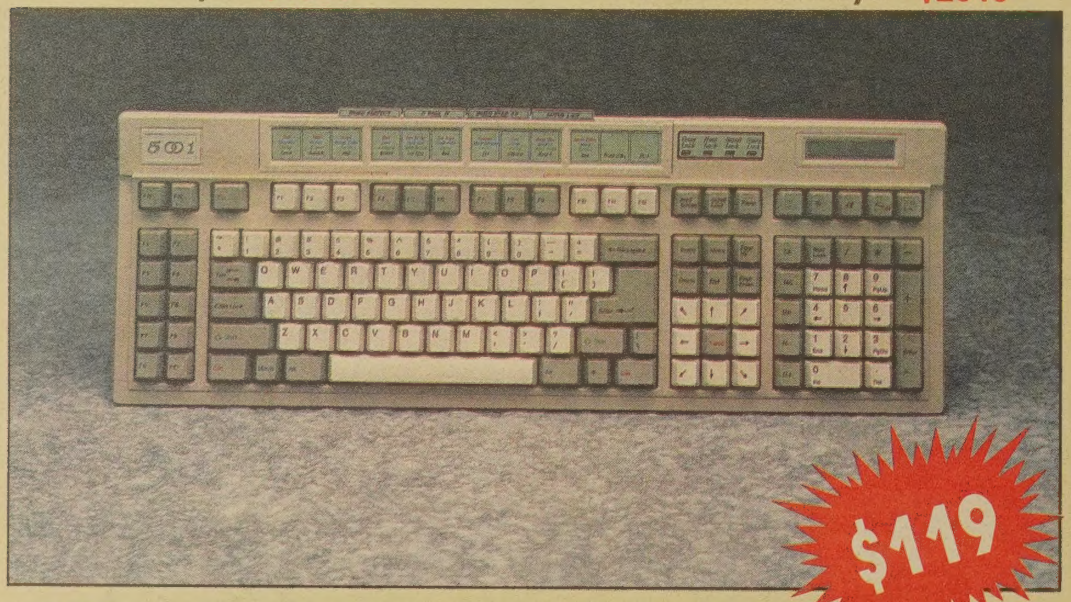
- Genuines Intel **80386SX** Microprocessor.
- **8/16** MHz ø Wait State dual speed hard/software selectable.
- **1 MB RAM** expandable to a system total of **16 MB.**
- **40 MB IDE** hard drive (1:1 interleave, 28ms).
- **5.25" 1.2 MB** or **3.5" 1.44 MB** diskette drive.
- Mono graphics controller, 12" high-res amber display **MONITOR** with tilt/swivel base.
- 102 keys enhanced **ALPS** switch tactile/click keyboard.
- 2 high speed serial ports plus one parallel and one game ports.
- **80387SX** math coprocessor support.
- Case with security lock & led indicators.
- Built in real time clock & calendar.
- Dual diskette and hard drive controller.
- 8 industry standard expansion slots.
- **200-WATT** power supply.
- VGA systems include the high performance 16-bit **PLATINUM** video adapter and **MONITOR**.

Mono 12" Sys. $1295 VGA 640×480 Sys. $1675
Super VGA 1024×768 Sys. $1825

COMPLETE 386-25 MHz HARD DRIVE SYSTEM ONLY $1635

Standard equips with the genuines intel 80386-25 MHz microprocessor. 40MB IDE hard drive. (1:1 interleave, 28ms) 300% faster than MFM & RLL hard drive. Standard feature as the 386SX system above.

Mono 12" Sys. $1635 VGA 640×480 Sys. $2015 Super VGA 1024×768 Sys. $2165



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LOGOS 5001 130 KEY KEYBOARD

The real keyboard terminator you can find this century is now presenting:

- 100% **PC/PS2, NOVELL ELS** compatible.
- **ALPS** switch, adopting click, tactile feeling. The highest cost, the best quality, the most comfortable feeling you can enjoy.
- Double shoot keycaps and keyswitch to guarantee **TEN MILLION** times typing.
- Special offer of "2 set of 12 function keys" on upper and left position to increase typing efficiency.
- 8 direction arrow keys for choice to move cursor 12 kind of speed.
- Build in a **CALCULATOR** and offer keyboard/calculator switch to choose function you need.
- Funishing calendar and extra 5 kinds of the most popular function description plates necessary.
- Offer an extra **MACRO** key.
- Extra "✱ " key for software copy operation (✱.✱).

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Logos platinum VGA 16 bit 1024×768 card gives you compatibility and performance that no other can match.

- 100% compatibility with the **IBM** compatible mother board.
- Memory expandable to 512K.
- Supports a wide rang of monitor:
  - **MULTISYNC** monitors
  - **PS/2** monitors
  - **VGA, EGA, CGA, MDA** & **HERCULES** monitors
- Fully supports:
  - All **IBM VGA** modes to the register level
  - **IBM EGA, CGA** and **MDA** modes to the register level
  - 80-column text modes in 30, 43 and 60 rows
  - 132-column text modes in 25, 30, 43 and 60 rows
  - Including numbers of the popular extended drivers
  - High-resolution graphics display includes:
    640×480 256 colors
    800×600 256 colors
    1024×768 256 colors

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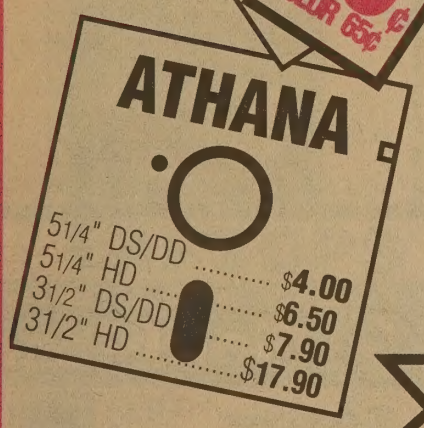
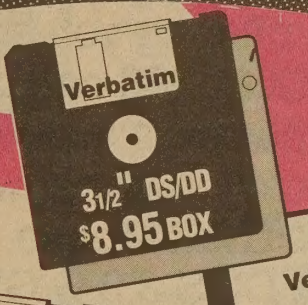
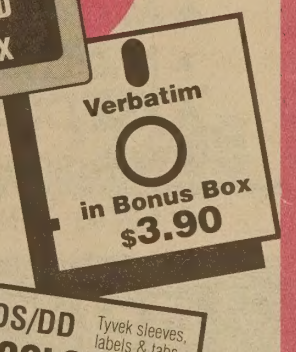
SMASHED PRICES







5¼" DS/DD
COLOR
Tyvek sleeves, labels & tabs.
Colors Availble: light blue, white, lavander, gray, red, brown, green, yellow, blue, orange, med, dark blue, maron magenta, rainbow pack.
35¢
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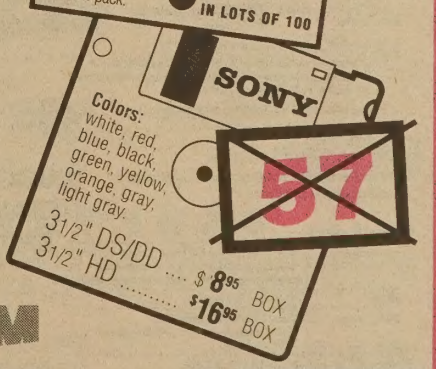

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5¼" box of 10 disks	$5.95 BOX
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A Kodak Company

5¼" DS/DD	$5.50 BOX
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5¼" DS/DD	~~$4.50~~ BOX
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3½" DS/DD	9.95 BOX

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Computer Paper 9½" x 11" 2,500 sheets	$22.95
Computer Paper 14⅞" x 11" 3,000 sheets	$32.95
Computer Cables (Parallel, Serial, etc.)	$7.95
Power Surge Control (UL)	$8.95
AC Power Pad (Master Pad) (UL)	$21.95
5¼" Diskholder holds over 140 diskettes	$10.95
5¼" Diskholder holds over 100 diskettes	$8.95
5¼" Diskholder holds over 50 diskettes	$6.95

5¼" Smokey Deluxe Library Case holds 10 diskettes	$1.50
3½" Diskholder holds over 50 diskettes	$9.50
3½" Diskholder holds over 80 diskettes	$10.95
3½" Deluxe Library Case holds over 20 diskettes Perfect Data	$14.95
3½" Smokey Deluxe Library Case holds 10 diskettes	$1.50
Head Cleaning Kit for disk drives (3½" or 5¼")	$3.95
Data Switch Box ABC-$25, ABCD-	$35
Keyboard Drawer Wooden-$39.95, Grey Metal-	$29.95
Keyboard Drawer Under Table	$24.95

3M

DC-2000	$16.95
DC-600A	$22.95
DC-6150	$26.95
DC-300XLP	$20.95
Maxell CS 600 HD	$18.95
Verbatim ST 600 HD.	$12.95

EXTRAS

Paper Sleeves	2¢
Tyvek Sleeves	4¢
Labels & Tabs	2¢

Prices are for minimum **100** diskettes. All diskettes are **101%** error free.

Shipping: 1st 100 diskettes, **$3.00**, each additional 100, **$1.00** — UPS, COD, Add **$2.75**

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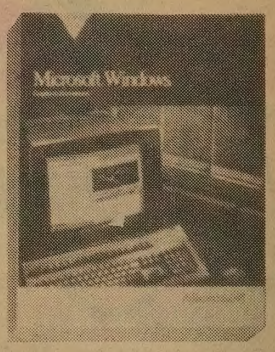
- Microsoft Windows 3.0
- Microsoft Mouse
- MS DOS 3.3 w/GW Basic
- Viruscan Software
- One Year Parts & Labor on-site (in Southern CA)

Microsoft
Making it all make sense

Windows 3.0
Graphic oriented multi-application environment.



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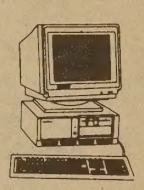
GoldStar GS100 8088-10



Entry-Level System
IBM PC/XT Compatible

Features

- Second-generation system features:
  Low power consumption (87W), high reliability; Small footprint motherboard; Dual floppy disk controllers; Speed selectable by keyboard or DIP switches
- Front panel power and reset switches
- MS-DOS 3.3 and GW-BASIC
- 101-key enhanced keyboard
- 24-Hr testing of motherboard and system at elevated temperature

$495

SUGG. RETAIL $995

Specifications

Motherboard	8088 - 1 CPU; 10 or 4.77MHz; Socket for 8087; Dual floppy controller; One serial and one parallel port; Real time clock with battery back-up
RAM	640KBytes standard
Disk Storage	Space for 2 H/H 5.25" devices; FDD: Standard one 5.25" 360KByte drive; HDD: Optional
Video	MONOCHROME CARD
Expansion Slots	Four slots
Power Supply	87 Watts, 115V
Keyboard	101 key keyboard
System Software	MS-DOS 3.3/GW-BASIC; Phoenix ROM BIOS
Dimensions	14.5" x 15.4" x 5.3" (WxDxH)
MONITOR	12" HI-RES AMBER MONITOR

$495

GoldStar GS230 80286-16

Features

- Small footprint system features:
  Dual floppy disk controllers; Three 16-bit and two 8-bit slots; 130W power supply (low power consumption and high reliability); One serial and one parallel port; 1MB memory standard - expandable to 5MB
- Two 5.25" and one 3.5" half-height slots available; HDC LED and power/speed LED
- Front panel power, reset and key-lock switches
- MS-DOS 3.3 and GW-BASIC; LIM-EMS 4.0 support; Shadow RAM for BIOS and video ROM to improve system performance; OS/2 support
- Novell certification
- 24-Hr testing of motherboard and system at elevated temperature

$995

SUGG. RETAIL $2495

Specifications

Motherboard	80286-16 CPU; 16 or 8MHz; Socket for 80287; Dual floppy controller; One serial and one parallel port; Real time clock with battery back-up
RAM	1MBytes standard; Expandable 5MByte on board
Disk Storage	Space for two H/H 5.25" and 1 H/H 3.5" devices; FDD: Standard one 5.25" 1.2MByte drive; 20 Meg Hard Drive
Video	MONOCHROME CARD/12" MONITOR
Expansion Slots	Five slots (three 16-bit and two 8-bit)
Power Supply	130 Watts, 115V
Keyboard	101 key keyboard
System Software	MS-DOS 3.3/GW-BASIC; Phoenix ROM BIOS
Dimensions	15.0" x 15.0" x 6.0" (WxDxH)

$995

GoldStar GS310 80386SX-16

Features

- Small footprint system features:
  Dual floppy disk controllers; Three 16-bit slots; 1 MB of RAM, expandable to 8MB; VGA built-in; One Serial, one Parallel and one Mouse port; 145W power supply
- MS-DOS 4.01 and GW-BASIC
- Space for three half-height storage devices
- 24-Hr testing of motherboard and system at elevated temperature
- One 3.5" 1.44MB Floppy Disk Drive

$1895

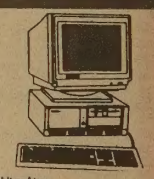
SUGG RETAI $3295

Specifications

Motherboard	80386SX-16 CPU; 16 or 8MHz; Socket for 80387SX; Dual floppy controller; One serial, one parallel and one mouse port; Real time clock with battery backup
RAM	1MB of RAM standard; Expandable up to 8MB on board
Disk Storage	Space for three H/H 3.5" devices; FDD: Standard 3.5" 1.44MB 80 MEG HARD DRIVE
Video	Built in 16-bit VGA compatible with 14" VGA W/SWIVEL + TILT
Expansion Slots	Three slots (three 16-bit slots)
Power Supply	114 Watts, 115V
Keyboard	PS/2 type: 101 key keyboard
System Software	MS-DOS 4.01 & GW-BASIC; Phoenix ROM BIOS
Dimensions	14.9" x 15.9" x 3.94" (WxDxH)

$1995

GoldStar GS320 80386SX-12



Features

- Small footprint system features:
  Dual floppy disk controllers; One 32-bit, five 16-bit and two 8-bit slots; 1MB memory standard-expandable to 2MB; One serial and one parallel port; Speed switchable by keyboard or setup program (8/20); 200W power supply
- Three half-height storage devices available; Shadow RAM for BIOS and video ROM to improve system performance; LIM-EMS 4.0 support; OS/2 and Novell support
- HDC LED and power/speed LED; Front-panel reset and key-lock switches; MS-DOS 3.3 and GW-BASIC
- Novell certification
- 24-Hr testing of motherboard and system at elevated temperature

Specifications

Motherboard	80386 - 20 CPU; 20MHz; Socket for 80387; Dual floppy controller; One serial and one parallel port; Real time clock with battery back-up
RAM	1MBytes Standard; Expandable to 2MByte on board; Expandable to 10MByte high speed memory with RAM board
Disk Storage	Space for 3 H/H 5.25" devices; FDD: Standard one 5.25" 1.2MByte drive; HDD:
Video	
Expansion Slots	Eight slots (one 32-bit, five 16-bit and two 8-bit)
Power Supply	200 Watts, 115V
Keyboard	101 key keyboard
System Software	MS-DOS 3.3/GW-BASIC; Phoenix ROM BIOS
Dimensions	18.5" x 16.0" x 6.1" (WxDxH)

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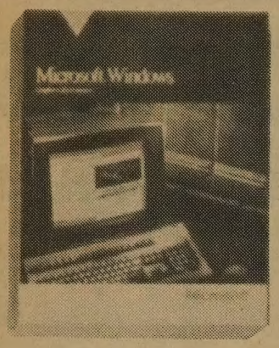

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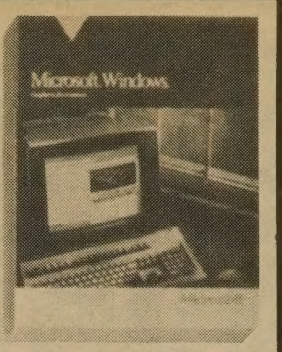

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Microsoft®

COMPUTERS FOR THE POWER HUNGRY USERS AT THE LOWEST PRICES!

80286-12

BEST BUY!

- Intel 80286 Chip
- 0 Wait State
- One Meg of Ram
- Expandable to 4MB on Motherboard
- 1.2 Meg Floppy Drive
- Hard and Floppy Controller
- 20 Meg Hard Drive
- Monochrome Graphics Card
- Hi-Res Amber Monitor
- Serial, Parallel, Clock
- Enhanced 101 Keyboard
- Desktop Case w/Turbo and Reset Buttons
- Supports Math Co-processors
- One Year Limited Warranty Parts & Labor

$895

80386SX-16

THE NEW GENERATION

- 0 WAIT STATE
- Intel 80386SX Chip
- One Meg of Ram
- Expandable to 8MB on Motherboard
- 1.2 Meg Floppy Drive
- Medium Tower Case
- 65 Meg Hard Drive
- 16 Bit VGA Card
- 14" VGA Monitor
- Serial, Parallel, Clock
- Enhanced 101 Keyboard
- One Year Limited Warranty Parts & Labor
- Monochrome $1595

$1895

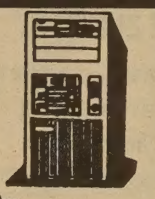
80386SX

80386- 25

- 0 WAIT STATE
- 32K Cache
- 386-33
- Phoenix BIOS
- Intel 80386-33 MHz Chip
- Two Meg of Ram
- Expandable to 16 MB on Motherboard
- 1.2 Meg or 3½" Floppy Drive
- Hard and Floppy Controller
- Super Tower Case
- Enhanced 101 Keyboard
- Serial, Parallel, Clock
- 55 MHz Landmark
- One Year Limited Warranty Labor Parts &

$2495

80386-33



- 0 WAIT STATE
- Intel 80386-25 Chip
- Two Meg of Ram
- Expandable to 8MB on Motherboard
- Hard and Floppy Controller
- 1.2 Meg Floppy Drive or 3½" 1.44
- Medium Size Tower Case
- 65 Meg Hard Drive
- 16 Bit VGA Card
- 14" VGA Monitor w/Swivel & Tilt
- Enhanced 101 Keyboard
- 2 Serial, Parallel, Clock
- One Year Limited Warranty Parts & Labor

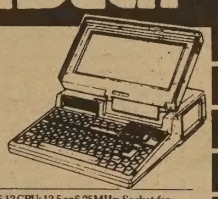
$2395

LAPTOPS

GoldStar

GS 500

Laptop Computer
IBM PC/AT Compatible

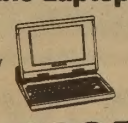


Specifications	
Motherboard	80286-12 CPU; 12.5 or 6.25MHz; Socket for 80287; Dual floppy controller; One serial and one parallel port; Real time clock with battery back-up
RAM	640KBytes standard; Expandable to 2.64MByte on board
Disk Storage	Space for two 3.5" devices; FDD: Standard one 3.5" 1.44MByte drive; HDD: Standard 20MByte drive
Video	High resolution gas plasma with four grey scales; 640 x 400 graphics; 80 x 25 high resolution character; External EGA/CGA/ Hercules video connector
Expansion Slots	One slot for internal modem, proprietary
Power Supply	70 Watts, 115V
Keyboard	83 key keyboard; Optional external numeric 10 key pad
System Software	MS-DOS 3.3/GW-BASIC; Phoenix ROM BIOS
Dimensions	13.0" x 13.4" x 3.9" (WxDxH)

$1695

PACKARD BELL

PB286LP - AT Compatible Laptop

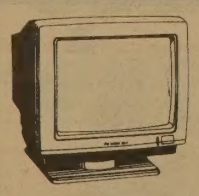


- 6 and 12 MHz clock speed
- 1 MB RAM (expands to 5 MB)
- Real time clock/calendar with battery back-up
- MS-DOS 3.3/GW Basic included
- 40 MB Hard Dr.
- VGA Card w/Ext. connector

$2295

MONITORS

CTX



- 28 Dot Pitch
- 1024x768 Resolution
- 14" w/Swivel
- Multisync

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PRINTERS

CITIZEN

GSX-140

THE PRINTER WITH SIMPLE ENGLISH PROMPTS

Superior 24-wire print quality

NEW **$299** w/Cable

$379 w/Color Option & Cable

GX-200 NEW

THE PRINTER WITH SIMPLE ENGLISH PROMPTS

Superior 9 wire print quality

$199 w/Cable

$279 w/Color Option & Cable

CITIZEN Color On Command

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NX1000II

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- 180 CPS draft/45 CPS NLQ
- 9 Pin Dot Matrix
- 4 NLQ fonts
- Paper Parking
- IBM/Epson compatibility
- Friction/push tractor feed

Panasonic Office Automation

KXP1180

- 192 CPS draft/38 CPS LQ
- 4 built-in NLQ fonts
- Rear, top, bottom paper feed
- Auto load & paper parking
- 2 year limited warranty

Sugg. List $299

$189 w/Cable

KXP1124

- 192 CPS draft/63 CPS LQ
- 5 resident LQ fonts
- 4 paper feed paths
- Push pull/tractor & friction feed
- Auto load & paper parking
- Epson & IBM Compatible
- 2 year limited warranty

Sugg. List $499

$299 w/Cable

KXP1624

- 192 CPS draft/63 CPS LQ
- 16.5" carriage, 13.6" print line
- 5 resident LQ fonts
- 4 multiple paper feed paths
- Auto load & paper parking
- Epson & IBM Compatible
- 2 year limited warranty

Sugg. List $699

$449 w/Cable

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Laser Printer

$1095 w/cable & toner

- Business, Word Processing, Desktop Publishing
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- 11 resident portrait & landscape fonts
- 300 DPI resolution
- Five popular emulations
- 512K RAM expandable to 1.5 MB
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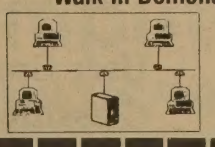

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Tales From The Shareware Front Lines *By Dan Baumbach* 51
If you've got a good product and are looking for an effective, low-cost marketing strategy, shareware might be for you. But it's not a panacea. Shareware author Baumbach explains some of the rewards and pitfalls of shareware distribution.

A NOTE FROM THE EDITORS:

The microcomputer industry has, in its brief history, been characterized by well-publicized "overnight" successes of entrepreneurs with good ideas. Like most things in life, the reality is a little more complicated.

This month's cover story features reports on some often-overlooked options and issues for startups. Consultant Mikael Blaisdell discusses the crucial importance of customer support to a company's prosperity; shareware author and current ASP Ombudsman Dan Baumbach talks about his own experiences of shareware distribution and explains some of the unexpected benefits and pitfalls.

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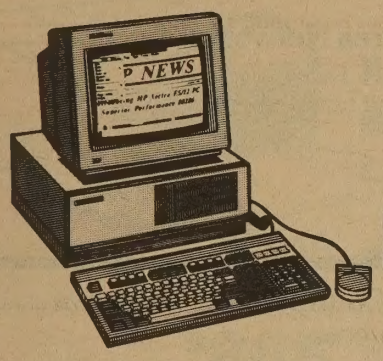

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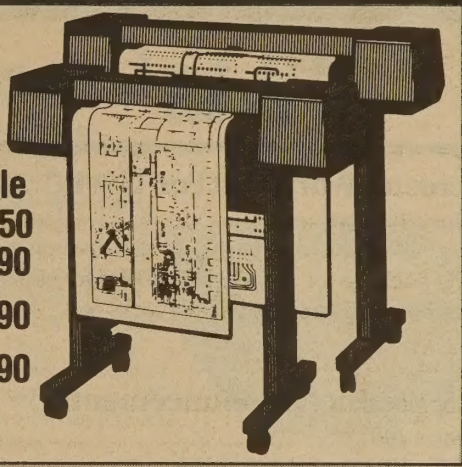

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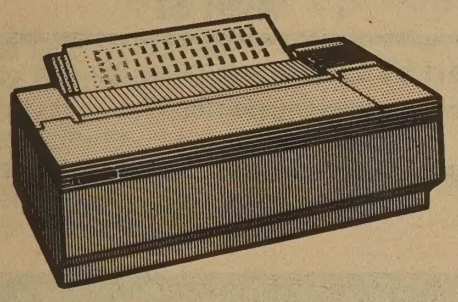

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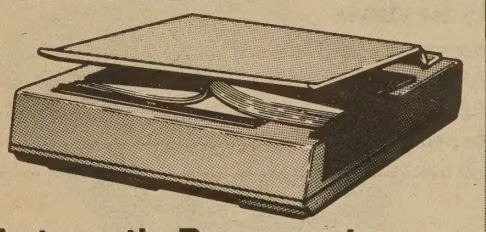

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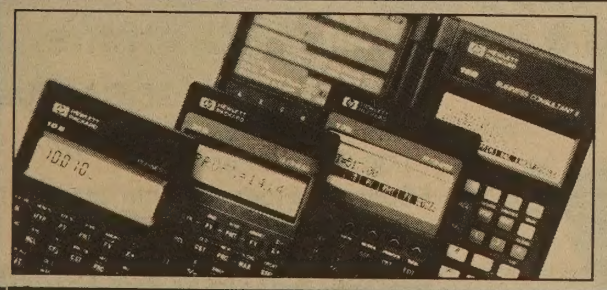

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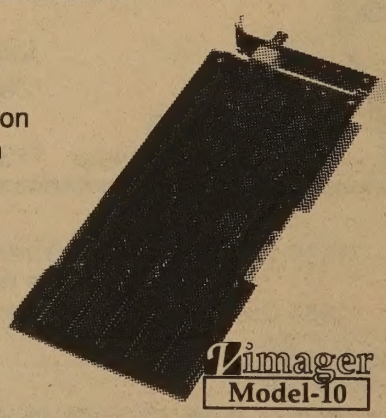

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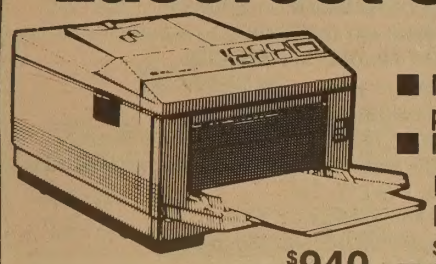

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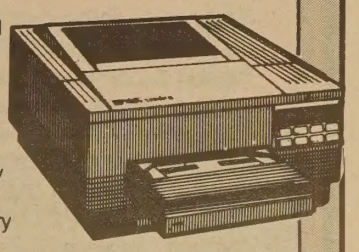

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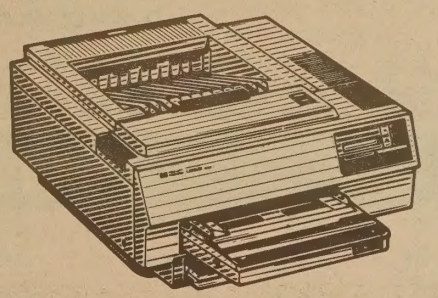

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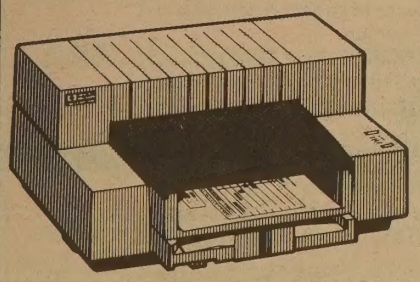

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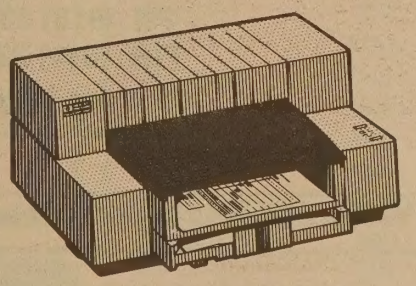

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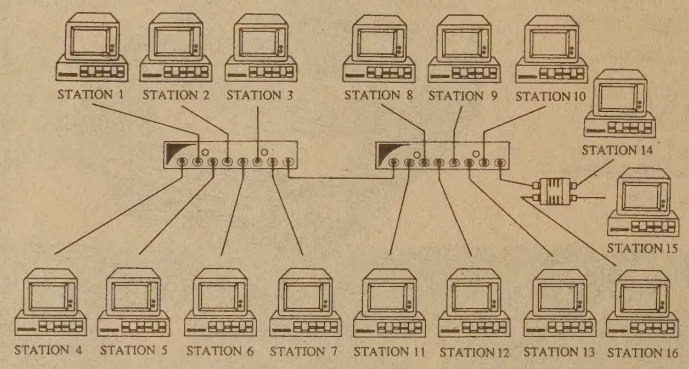

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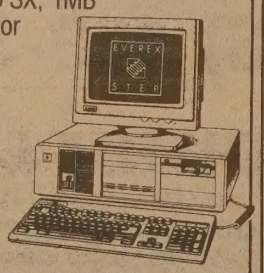

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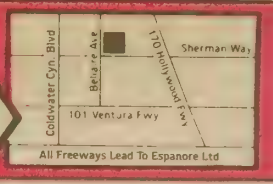

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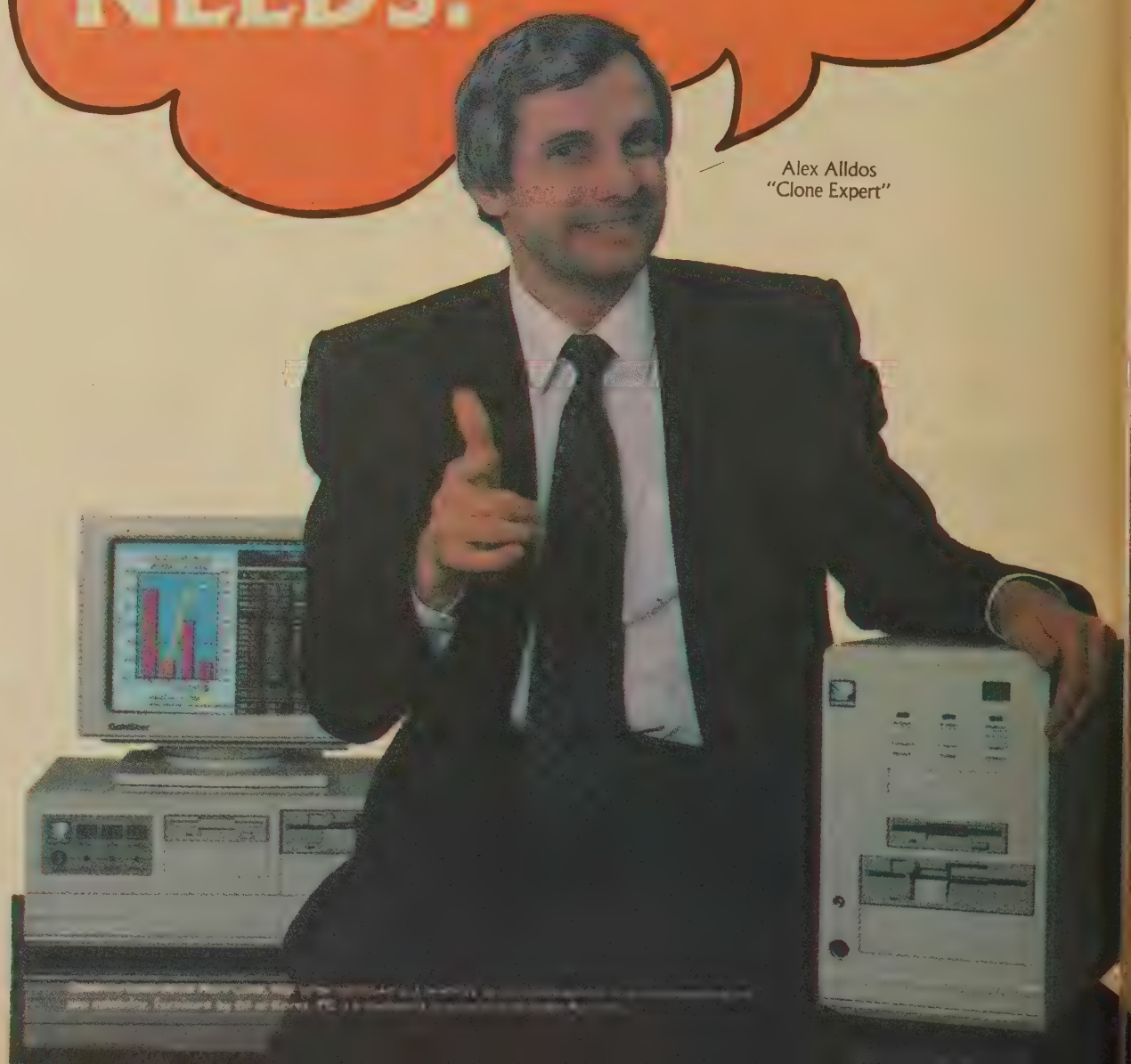

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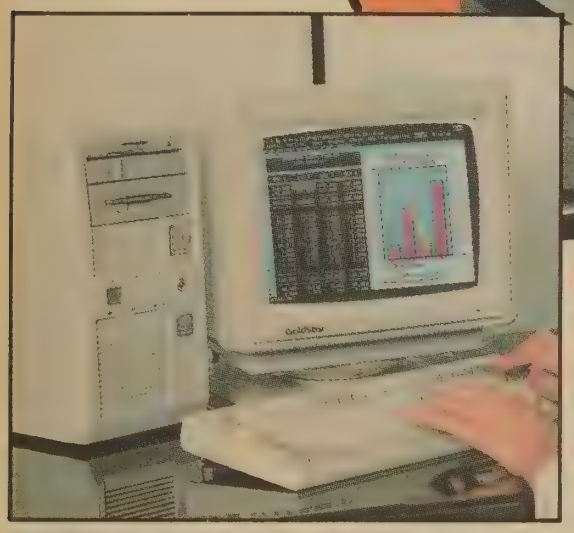

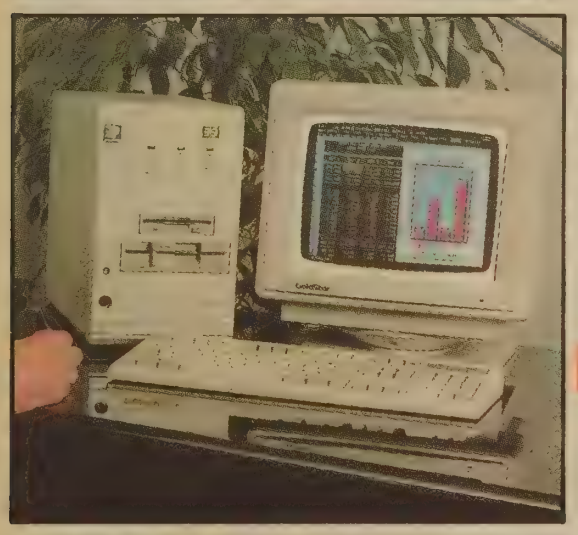

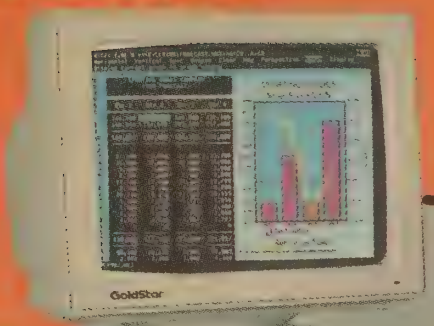

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INDUSTRY INSIGHT

BY PAUL HOFFMAN

WINDOWS 3.0: IT'S REAL, IT SORT OF WORKS, AND IT WILL BE IMPORTANT

Microsoft made it the industry's worst-kept secret. People have been talking about it for almost a year. Software manufacturers have been showing demonstrations on beta-test copies of it for six months. And, with the fanfare usually reserved for new products, Microsoft finally officially announced and simultaneously released Windows 3.0, the graphical operating environment for MS-DOS.

The computer press has had a field day (actually, field month) singing the praises of the software. In fact, it is not that much different from previous versions of Windows, which have not sold very well. This time, however, Microsoft has convinced the software publishers to write for Windows, and will thus be able to convince users to buy it.

Yes, buy it. It is not free. If you already own an 80286- or 80386-based system, you cannot get it for free. The list price is $149, although if you already have a copy of Windows 2 (even the Windows run time that comes with most Windows applications like Excel and Word For Windows), the upgrade price is $50. Microsoft is emphasizing that Windows is not part of the operating system, but is an add-on. You buy it like you buy software.

Many hardware manufacturers are planning to bundle Windows with new systems starting this month, so new buyers will not have to buy it separately. Most of us, however, will need to buy it, or at least pony up the $50 for the upgrade.

Paul Hoffman is an industry analyst who has been covering microcomputer technology for ten years. He can be reached on USENET (phoffman @well) and MCI Mail (264-3171). He also writes popular microcomputer books.

Still A Few Bugs: There are, however, some significant bugs that Microsoft admits to but says it will not fix. Windows 3 has basically two major new features: a better user interface for starting programs, and better memory management. The new user interface, called the Program Manager, shows windows of iconic representations of user applications. The names on the programs can have more than the standard eight uppercase characters. The improved memory management lets you use your PC's memory as "extended memory" which is generally much faster than the "expanded memory" that Windows 2 programs required.

Essentially, Microsoft has given Windows more of the cosmetic features that Macintosh users have assumed to be standard parts of a computer. They didn't go all the way, however, and the press pundits who claim that using Windows 3 is just like using a Macintosh either haven't used a Macintosh much or didn't use much of Windows. For example, the new iconic interface is only available for the Program Manager; it does not apply to the File Manager, the utility you use to move and delete files. Although the new File Manager is much improved over the old one (you can see the tree structure of your directories), it still represents documents by their eight-letter names. Mac users can see all files as icons and can easily launch their applications while looking at the documents.

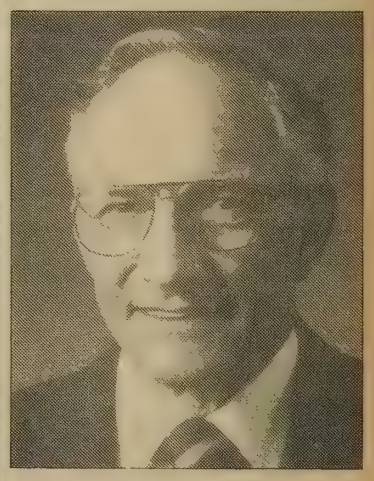
The improved memory management has the unpleasant side effect of making almost every current Windows program not work. Although some publishers had new versions available when Windows 3 was released, numerous others said that their upgrades won't be ready for many months.

Microsoft made some efforts to overcome this problem by giving Windows 3 a mode that will run old programs. However, it is very difficult to run both old-style and new-style Windows programs at the same time, be-

ROBERT NOYCE, PRIME MOVER IN EARLY SEMICONDUCTOR INDUSTRY, DIES

The industry will miss Robert Noyce, one of the earliest significant pioneers in the creation of the semiconductor. He died June 3 of a heart attack at the age of 62.

Early in his career he helped found Fairchild Semiconductor and Intel. As one of the co-inventors of the integrated circuit, he helped shape essen-



tially all of the electronics industry in the last 30 years. When he died, he was president and CEO of Sematech, the consortium trying to reestablish the US as the world leader of the semiconductor industry.

He had won numerous awards both as an engineer and as an industry leader, and held over a dozen patents for semiconductor devices.

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cause old-style programs need expanded memory but new-style ones need extended memory. Microsoft is banking on the fact that most Windows users up to now generally only used a single Windows program.

One big improvement that comes from the new version's better memory management is that it now works much better with networks than Windows 2 did. Still, Windows 3 programs are not that fast unless you have an 80386 or 80486. ToolBook, the HyperCard-like runtime package that comes with Windows, is fairly sluggish on a 12MHz 80286, even with 2Mb of RAM.

All new software has bugs, but only Microsoft could get away with releasing software that causes hard disks to crash or not be recognized and get away with it. Windows 3, when running on an 80386-based system, interacts badly with hard disk utilities that partition the hard disk, and may cause significant data loss.

The vast majority of MS-DOS users use version 3, since version 4 takes up much more memory and does not run on many clones. However, version 3 cannot handle disks larger than 32Mb. Thus, users of version 3 often use third-party disk partition systems to give them partitions larger than 32Mb. Windows 3 often causes severe damage to the file allocation tables (FATs) of disks with such partition software, causing total data loss. Microsoft cavalierly claims that you should use MS-DOS version 4 if you want larger partitions, even though it doesn't run reliably on many systems.

To make matters worse, Microsoft admits that it knew about the incompatibilities before Windows 3 was released but never told anyone. There is no mention of the problem in the release notes that come with Windows 3, and Microsoft didn't even tell the manufacturers of the partitioning software. According to Microsoft, "We knew certain partitioning methods caused problems for Windows," but they decided not to publicize the problem.

Apparently the problem can be partially alleviated by using a temporary (instead of permanent) swap file, but even in that case damage can be done.

What It All Means: Although the hoopla for Windows 3 sounds a great deal like the misplaced excitement that Microsoft generated for earlier versions of Windows and OS/2, many more software companies are committed to producing Windows applications by the end of this year.

Microsoft itself is the biggest manufacturer of Windows software, and the current versions of Excel and Word for Windows work under Windows 3. Aldus has promised that PageMaker, another important Windows application, will be updated by July. New Windows applications are expected from Lotus, Adobe, and Informix.

The press pundits who claim that using Windows 3 is just like using a Macintosh either haven't used a Macintosh much or didn't use much of Windows.

It is likely that most of these companies will see much larger sales in the Windows market than in OS/2. OS/2 has been moribund for many months, and many developers have said that it is so much easier to develop for Windows than it is for OS/2 that it is unlikely that OS/2 will catch on for many years.

Of course, it is still not clear that Windows will catch on either, but its much more serious support from software developers gives it a much better chance than it ever had before. People who were disillusioned with Windows 2's limitations will be pleased with many of the improvements in version 3.

The first noticeable change is the much better setup program. The Windows 2 setup program was so bad that many people could not use it at all. The new setup is significantly better and less daunting to new users. The Program Manager and File Manager will make it less likely that people will leave Windows to perform normal file management tasks. The bundled applications are also better and easier to use.

Microsoft is betting that the tens of millions of PC users who have 640K or 1Mb machines will upgrade to at least 2Mb. Although Windows 3 will work on a 286-based machine with 1Mb, most software publishers are saying that they will require two, because Windows itself eats up most of the first megabyte. Adding memory to a PC is not terribly expensive (RAM is now selling for $70 to $110 a megabyte), but most PC users do not want to open their PCs. Even those who are willing to open them are unwilling to risk pressing chips into sockets or even to change boards. Since few PCs weigh less than 25 lbs., many users will be hesitant to drag their machines into their dealers and leave them there for a few days or even overnight. Although the memory upgrade issue was passed over by Microsoft as minor, it may significantly slow the acceptance of Windows. Even today, most of 80286 and 80386 systems sold come with only 1Mb of memory, and many require an additional memory board to add more RAM.

Windows itself is a lot more fun than plain old MS-DOS. It always has been, but that has not been enough to get users to adopt it. The only reason most people bought Windows was that Windows applications like Excel and PageMaker required it. With more Windows applications appearing this year, more people will feel compelled to spend the money to buy it.

Some programs just won't work with Windows, such as TOPS networking; in order to run some popular programs like Lotus 1-2-3 version 3 on an 80386-based system, you have to use a less-powerful mode of Windows. There will be a fair amount of pressure on the developers of such programs to make them compatible with Windows. Although it will not be a "necessary" part of running MS-DOS for many years (if ever), it will certainly become a significant part of the computer scene, and will probably make life easier for tens of millions of users in the next few years.

If you are interested in Windows 3, check to see whether you have a copy of Windows 2 anywhere. You may have gotten a complimentary copy when you bought a Microsoft Mouse or other hardware. If you have any Windows application, you have a copy of Windows 2. This lets you upgrade to Windows 3 for $50 (plus $5.50 shipping). Call (800)323-3577 and have a credit card ready. Microsoft has special upgrade rates for corporate customers. The upgrade offer is only good until September 15.

COMPUTER BOOKS FOR THE YEAR

Once a year, the American Booksellers Association gathers all the publishers to show off the books that you will see in the next year. This year's show, in Las Vegas, did not bode well for buyers of computer books.

Very few new ideas showed up at this year's ABA convention. Many publishers are so busy turning out books for every level of user of all the popular programs that they haven't done much to move out of their established

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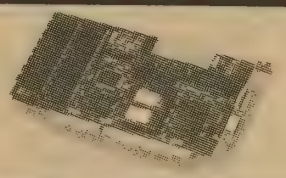

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- Automatically displays CGA, MDA and Hercules programs on analog monitors
- Runs under DOS, OS/2, Unix and Xenix
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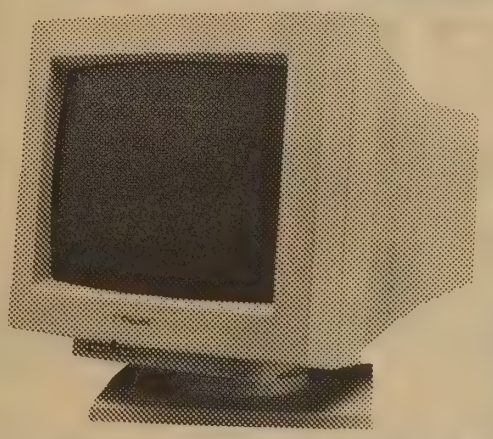

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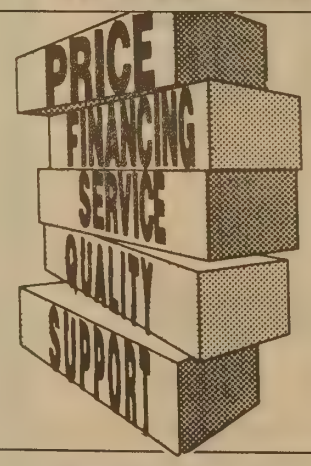

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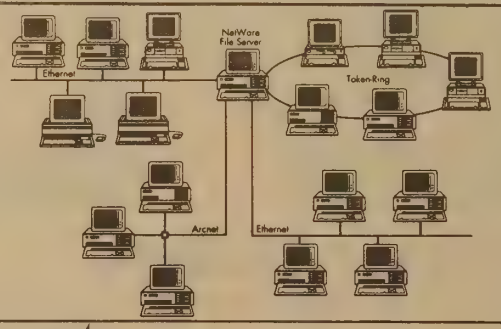

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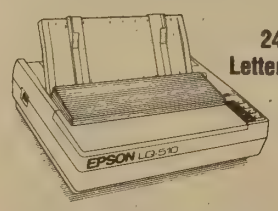

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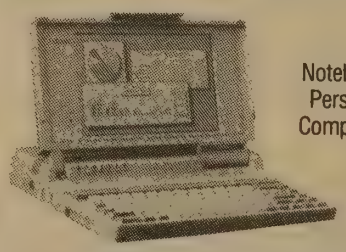

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series. The past year has not created many new best-sellers, so most of the publishers didn't try to find any new methods to get computer book buyers in different forms.

Of course, Windows 3 books are all the rage, and will continue to be for at least the rest of this year. There will be at least a dozen books on the basics of using Windows 3, and another dozen "power users" guides. Given that Microsoft made a good effort and greatly improved the documentation that comes with Windows 3, it is not clear how well these books will sell.

A few publishers will also have books on programming with Windows 3.

Microsoft Press has the most books for Windows and is the only publisher to be able to call its books the "official" guides. Microsoft Press also has the distinction of starting the only major innovation of the year, books that come with demonstration versions of the software they talk about. Following up on Microsoft's successful "Learn xxx Now" series, these "special editions"

Windows 3 books are all the rage, and will continue to be for at least the rest of this year. There will be at least a dozen books on the basics of using Windows 3, and another dozen "power users" guides.

come with disks containing crippled demonstration versions of the software, so you can follow along with the tutorial in the book even if you don't own the product. For about $30, people who are not sure whether or not they want to buy a product can test it and, if they decide to buy it, already have a good introductory book on it. Given that Microsoft is notorious for incomplete manuals, this reduces fears of potential buyers about buying the full package.

Other publishers are also rediscovering book-disk combinations. After last fall's best-seller by John Dvorak, *Dvorak's Guide to PC Telecommunications*, many companies that had tried

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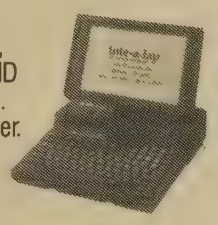

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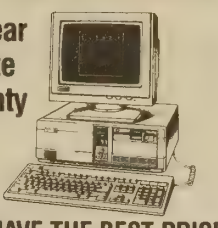

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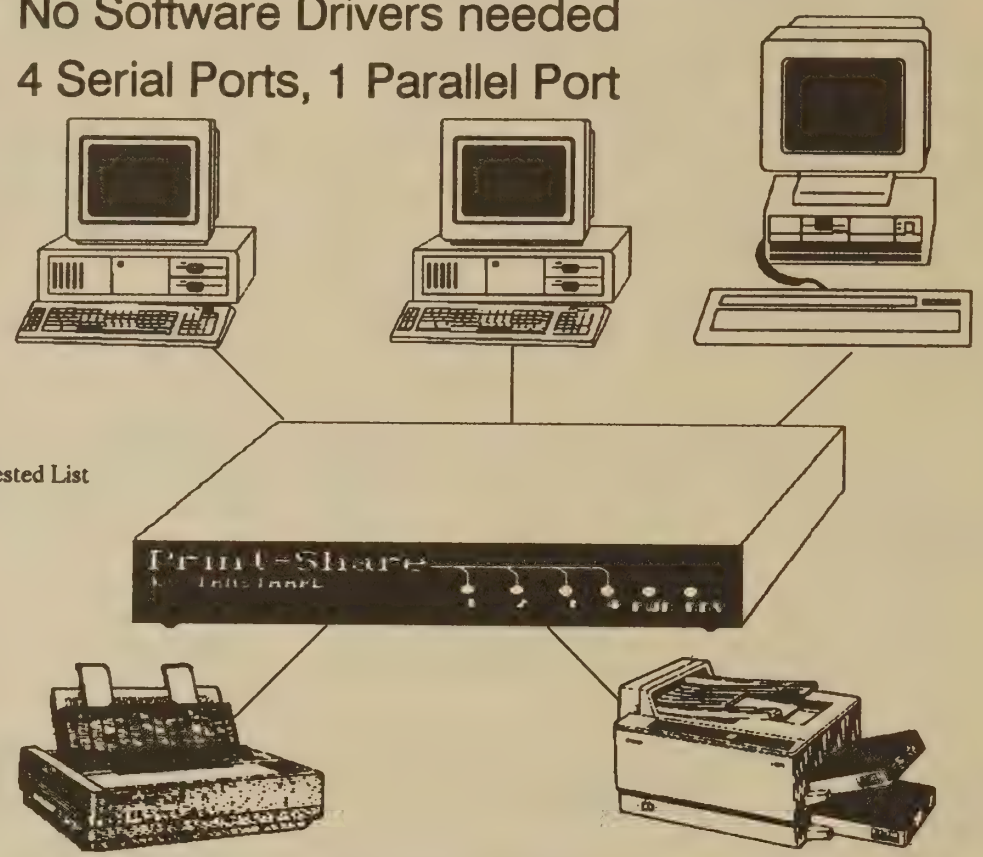

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NEWS & VIEWS

book-disk combinations once or twice and given up on them rediscovered their appeal. Early book-disk combinations were aimed only at programmers, but many companies have now released sets that are useful to a much wider variety of readers. The recent announcements, which will be released at various times in the next few months, include the Waite Group's *Master C: Let the PC Teach You C, Dr. File Finder's Guide to Shareware* from Osborne/McGraw-Hill, and *Windows 3 Programming Primer* from Addison-Wesley.

Bookstores have steadfastly refused to sell non-book software for many reasons. Primarily, since they don't understand much about computers, they are hesitant to sell something that might require support. Most bookstores can't figure out how to categorize computer books in their computer section, much less sell and support software. The large chains like Walden's and Crown do sell a few select titles, but they don't plan on expanding much, since the software sales have been small and the inventory costs are high. The advent of book-disk software worries some bookstores but they hope that people are in fact just buying the book.

Since books require almost no "support," book-disk packages don't scare bookstores' buyers nearly as much as regular software.

Other books that do not fall into the yet-another-guide-to-some-software include the new edition of the *PostScript Language Reference Manual* (Addison-Wesley), the *Sim City Planning Commission Handbook* (Osborne/McGraw-Hill), the *Used Computer Handbook* (Microsoft Press), and a slew of books on Nintendo and other video game machines.

HITACHI DEVELOPS FIRST 8MB RAM CHIP

Leapfrogging over other semiconductor companies, Hitachi recently announced that they had developed a working prototype of a 64Mbit (8Mb) chip. In addition, they said that the chip used new technology to create circuit paths only .3 microns wide, much narrower than current production technology, and that the chip had been etched by electron beams.

Although production of this chip is years away, it could give Hitachi a huge boost in the market if they were the only supplier of RAM that is so dense. ■

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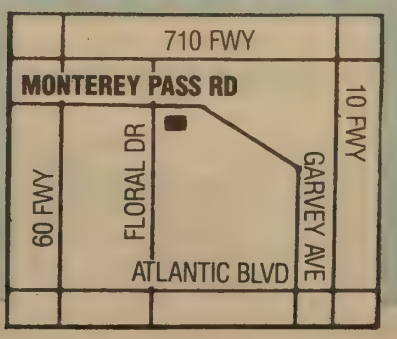

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LETTERS

TOO MUCH LAWYER-BASHING?

While lawyer-bashing is both popular and sometimes appropriate, I have to take exception to Paul Hoffman's column (#69). The judge in the litigation between Motorola and Hitachi may well have castigated the lawyers in the case since the judge had no one else available to address; however, it is not the lawyers who make the decisions when it comes to determining whether to settle a case or continue with litigation. That is a business decision left strictly to the principals, although obviously the principals will seek counsel's opinion. It is a violation of ethics, by the way, and grounds for malpractice, to fail to inform a client of a settlement offer.

Litigation is one of the worst business propositions in the world. No rational businessman wishes to pour money down the litigation rathole without good reason. Given the dollars at stake in the chip copyright infringement litigation, the decision to settle, to continue the litigation, or to appeal is one that could only be made at the highest levels of management and the board of directors.

"Litigation is one of the worst business propositions in the world. No rational businessman wishes to pour money down the litigation rathole without good reason."

While there are certainly substantial fees to be made from the kind of major litigation that the Motorola/Hitachi dispute involves, any high quality reputable law firm today finds that it has all the business it can handle given the litigious nature of Americans in general. Let's put the blame where it belongs.

Plaudits to Jim Warren for his entertaining and thought-provoking columns. As to redistricting by algorithm, who is going to watch the programmers? Or are they immune to such mundane attractions as politics?

George M. Snyder
Huntington Beach

PHYSICS ALERT

Re your review of Interactive Physics: send Markowitz back to Physics 101. A free-falling object does *not* fall 32 feet the first second. It falls 16 feet. It accelerates 32 ft/sec^2.

$s=1/2at^2$.
$\therefore$ if t=1 sec, s=16 ft.
if t=2 sec, s= 64 ft.

from the start, not 64 ft. during the second second. What he's got is velocity, not displacement.

L.W. Jordan
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TANDY USER SEEKS HELP

Please refer me to anyone who can offer me support group assistance with my Tandy SX1000 computer and DMP430 printer.

Noting that I reside in the Southern California area of Anaheim, a support group in the local area would be most beneficial. Or perhaps you can refer me to an organization which can be instrumental in my desperate pursuit of help!

Peter Creanza
Anaheim

If any readers have any useful suggestions, we'll be happy to publish them.—eds.

AMIGA IN THE REAL WORLD

My son and I operate a desktop publishing (i.e. electronic prepress) business, and our hardware/software is based upon the Amiga 2000. Our equipment includes a 68020/20MHz CPU with MMU and math coprocessor running at 20MHz, 7 Mb of RAM, and an 11ms, 80 Mb GVP Quantum hard drive with DMA 64K fast-cache controller, FlickerFixer video card, and NEC MultiSync monitor. No sunglasses needed.

Our "meager" peripherals include an NEC LC890 laser printer, Canon IX-10 scanner, Supra 2400 baud modem, HP PaintJet printer, AMAX Macintosh emulator with drive, and a Sharp JX-100 color scanner.

In short, what we have here is an integrated, powerful, fast, fully IBM- and Mac-compatible system which supports the three main computer systems. Besides thousands of Amiga software programs, we can take advantage of IBM and Mac software as well.

Mr. Shrivastava [author of recent letter "Disgruntled Amiga User Strikes Back"] suffers from the same MacDisorder most MacPeople suffer from: MacBlindness. He knows nothing about the Amiga and understands less. He knows nothing about IBM clones and understands even less about them. I suggest he leave the safety and exclusivity of his college-buffered yuppie world and discover that other viable computer systems do indeed exist.

I use my computer because it is the tool for the job. Period. I don't care what you do with your computer. I say enough of this stupid insipid competition! Use what you wish. Let's be friends. Of all people, we should know better than to compete. We have much knowledge. We wish to share it. Will you?

Steve Muchmore
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Claremont

UNIX MAIL: NO OFFICE SHOULD BE WITHOUT IT?

In your April 16th issue you ran an article about installing QuickMail on a Macintosh. In the article it implies that setting up electronic mail (email) on a UNIX computer is a very difficult task. This is not true. Under UNIX, electronic mail is part of the operating system, not an application you have to buy and install. On a standalone UNIX computer, sending mail on the local system requires no setup; you just send mail to the user's account. There are no restrictions on the num-

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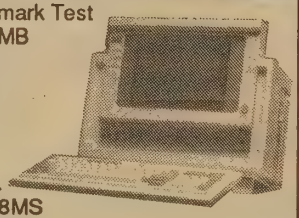

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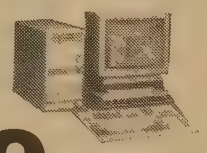

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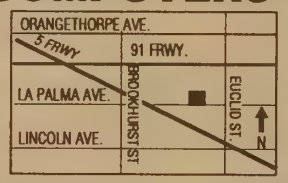

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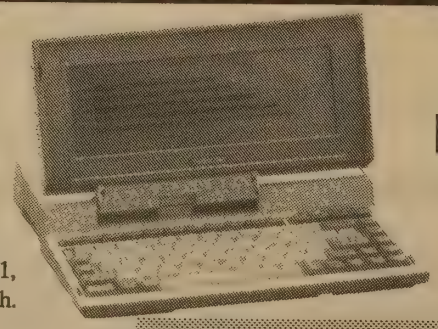

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NEWS & VIEWS

"Ease of use is an important issue, and is coming to UNIX with the X windowing system, but it is not the only issue. Connectivity with other people and other companies makes the email system much more powerful."

ber of users that can use it. If you are setting up email on a network of UNIX computers, or setting up a link to the international Usenet/Internet community, there are a few steps involved, but it is really quite straightforward: attach a modem, edit a few files, and establish a link to a Usenet neighbor. With this you have access to one of the largest email communities in the world, and all for the cost of your phone call.

Admittedly UNIX is not icon-based (yet), and you do have to know how to use an editor in order to set it up, but the connectivity of the Usenet/Internet community is immense. What other email system allows you to send mail to almost any employee of most of the major computer companies, such as Apple, Sun, DEC, and AT&T? What other email system allows you to send mail to almost any student or researcher at most colleges, universities, and research centers? Again, all this for a phone call and some good will on the other end of the link.

Ease of use is an important issue, and is coming to UNIX with the X windowing system, but it is not the only issue. Connectivity with other people and other companies makes the email system much more powerful. Imagine being able to send electronic mail to any other person from your computer—just like dropping a letter in the mail box—but with electronic delivery speed. The rest of the world will become a little closer.

Robert Harker
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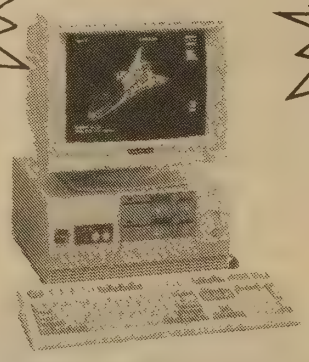

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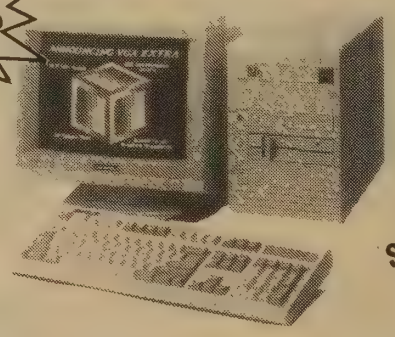

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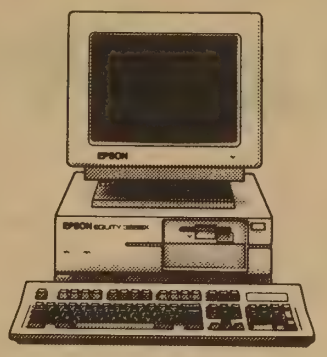

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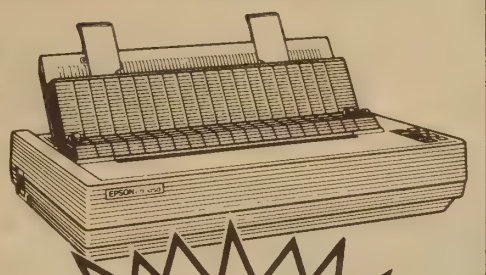

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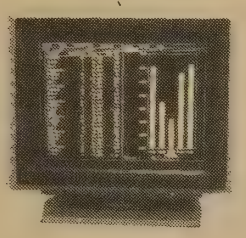

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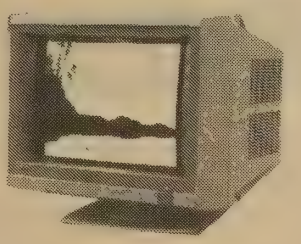

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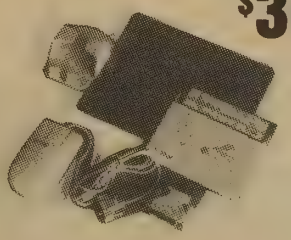

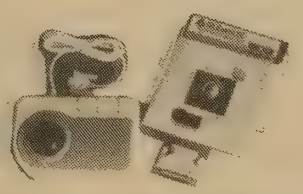

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About Backup, Freedom, And Mitch Kapor

BY JIM WARREN

Perhaps the most notable aspect of "personal" computing is that individuals can configure their tools to meet personal desires, more than with any previous technology—including minis and mainframes.

Personal computers permit the adjusting of tools to people, rather than the adjusting of people to tools. As it should be!

Let's discuss how to do it.

BACK UP, BUDDY!

What do you need for backing up your files and disks?

I just spent a week archiving about 200 floppies, plus backing up 400+ megs of hard-disk files—containing numerous duplicate files and near-duplicates. I used Retrospect for the Mac (from Dantz Development in Berkeley, 415/849-0293). It's the best archiving tool I've ever used.

But, like Oliver Twist, I—of course—want more. (After all, that's what this column's all about.) After the past week, plus 23 earlier years of "innovative backup errors," here's my ultimate backup/archiving system—major aspects of which are already reflected in Retrospect.

REALIZABLE FANTASIES

Copyright © 1990 by Jim Warren. All rights reserved. *Jim Warren founded* InfoWorld, *the DataCast proposal for broadcast-based paperless electronic newspapers, Video Initiative, Wireless Digital, Initiative, Inc. and the nation's largest public microcomputer convention. He was founding host of PBS television's "Computer Chronicles" series, founding editor of* Dr. Dobb's Journal, *founding president of the Microcomputer Industry Trade Association and has chaired various computer professionals' organizations. He holds graduate degrees in computing (Stanford), medical information science (UC Medical Center), and mathematics.*

MINIMIZE LIMITS; PRESUME VARIETY

Set size constraints only by the memory and storage limits the software finds on a user's system. Users may have—or add, or remove—gigabytes of storage, fixed and removable rotating and tape media, numerous subsystems, masses o' memory, full-figured filenames, colorful icons, etc.

Make minimum assumptions about what recording media will be used for the source and target. *Don't* assume backup will be on floppies.

Allow for the differing peculiarities of fixed and removable disks, big and li'l' disks as sources and as targets, formatted and unformatted media, MO (magneto-optical read/write) and WORM (write-once/read-many) laser disks, and addressable and non-addressable tape—including 9-track reels, 3M-type cassettes and helical-scan tape (standard VCR, 8mm videotape, and 4mm DAT—digital audio tape).

Allow for orderly source and target error recovery during backup—especially from common events such as inserting or ejecting incorrect disks, disk-full conditions, write-lock and not-formatted events, etc.

Allow multiple sources to be specified in a single backup or archiving session.

For each session, allow the user to specify how many copies of a file, or folder (subdirectory) or logical disk are to be made, and in what order (file by file, folder by folder, session by session), and on what target media—which may be multiple and dissimilar (e.g., tape and MOs, floppies and a Winchester, etc.).

Allow the user to specify whether to data-compress files—by file, folder or session—and which compression technique to use. (Typically, compression routines are reasonably fast and cut file-size in half or better.)

Ditto for encryption. Offer simple encryption and DES (government-specified Data Encryption Standard). When requesting the password or key for each encryption, allow the user to see or suppress its display as they enter it. If they wanna see it, and risk letting others see it as they type, let 'em!

BACKUP VS. ARCHIVING

Allow for *backup*—where the current source contents are saved on the target. Leave the source intact, modifying no more than perhaps its backup dates—with user's permission.

Save the source file directory—as well as its files. This permits automatic reconstruction of the source's contents, including directory structure—even if it involves thousands of files.

For backup, old versions of files and directories on the target may be replaced with their current versions from the source—especially if the user wishes to minimize the media required for backup.

Replacing or retaining old copies is the difference between backing up and archiving—but it has numerous ramifications. The next column will address archiving issues.

OPINION: KAPOR'S RIGHT ON

An editorial—pretending to be the lead news article on *ComputerWorld*'s front page (6/4/90)—ripped Mitch Kapor, who dared to propose creating a legal defense fund "for hackers targeted

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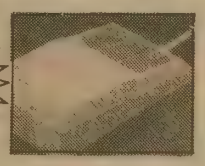

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PONTIFICATE YOURSELF

Send suggestions to Jim Warren, Realizable Fantasies, 345 Swett Rd., Woodside, CA 94062. Published proposals will be attributed to their authors unless anonymity is requested.

by federal investigators"—even though he absolutely is not proposing to defend convicted computer crackers. (Mitch founded Lotus and On Technology.)

The *CW* hit piece—which opened with, "Say it ain't so, Mitch!"—later succumbed to journalistic principle, mentioning that the fed's targets were *alleged* hackers whose property—apparently computers?—had already been taken by agents "in a federal computer crime sweep."

After the "article" trailed off to page 123, it even got around to reporting Mitch's side of the issue—quoted *indirectly* from the *Washington Post*: "It's plausible there's a witch-hunt going on. I'm concerned that hackers' civil liberties are being violated. I'm concerned these kids [the unconvicted hackers] aren't getting a fair shake in the legal system. They don't have access to legal counsel that would let them adequately defend their rights." In the 13th of its 16 paragraphs, it even mentioned that, "Kapor reportedly said he feels that bulletin boards promote technological innovation and that the prosecution will have a 'chilling effect' on the free flow of information."

Also quoted—on page 123: Arizona Assistant Attorney General Gail Thackeray, who coordinated the federal "computer crime sweep," saying, "We've arrested the evidence [! ?]. The only legal argument these people have is whether they are entitled to the return of their property."

THE PRESS VS. CIVIL LIBERTIES

Folks, this does *not* concern protecting convicted computer crackers against judicially-imposed penalties. (If they are guilty, let it be proven in a court of law, and let the court impose the penalties.)

This concerns the too-easy presumption of guilt—unless innocence can be proven. This concerns the seizure of property, taken and held by armed government agents—until such police-imposed penalty can be proven in court to be invalid. This concerns citizens being assured the full "due process of law"—even if they don't know what it means and have a tiny fraction of the financial and staff resources available to the prosecution.

And, this concerns a too-docile Press: too unquestioning of "authority," too unconcerned about civil liberties, offering opinion and bias under the guise of—and in place of—objective, balanced news reporting.

The Constitution does *not* guarantee our civil liberties, nor our protection again illegal search or seizure. It merely *lists* the protections (as do constitutions in some outrageous dictatorships). We, as individual citizens, are freedom's only guarantors—and we desperately need a wary, vigilant free Press.

Citizen Kapor placed his resources on the line to help guarantee what the Constitution merely proposes. My fantasy is that others—and the Press—will also protect those fragile freedoms.

QUICKIES

When asked to recommend a magneto-optical drive, Tovar commented: "Well, make sure the fan's going in the right direction."

To dip your toes into the CD-ROM pond, without taking a bath, grab a NEC CDR-35 CD drive. Though a little *sloowww*, it's the cheapest CD-ROM drive on the market—as low as $469 (*MacWeek*, 6/5). Further, a button releases it from its dock. Snap on a battery and have a Walkman-style player for your music CDs. Neat low-cost, multi-use design. ■

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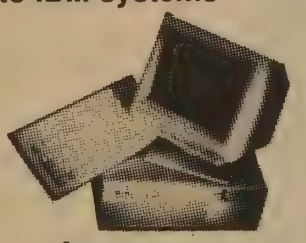

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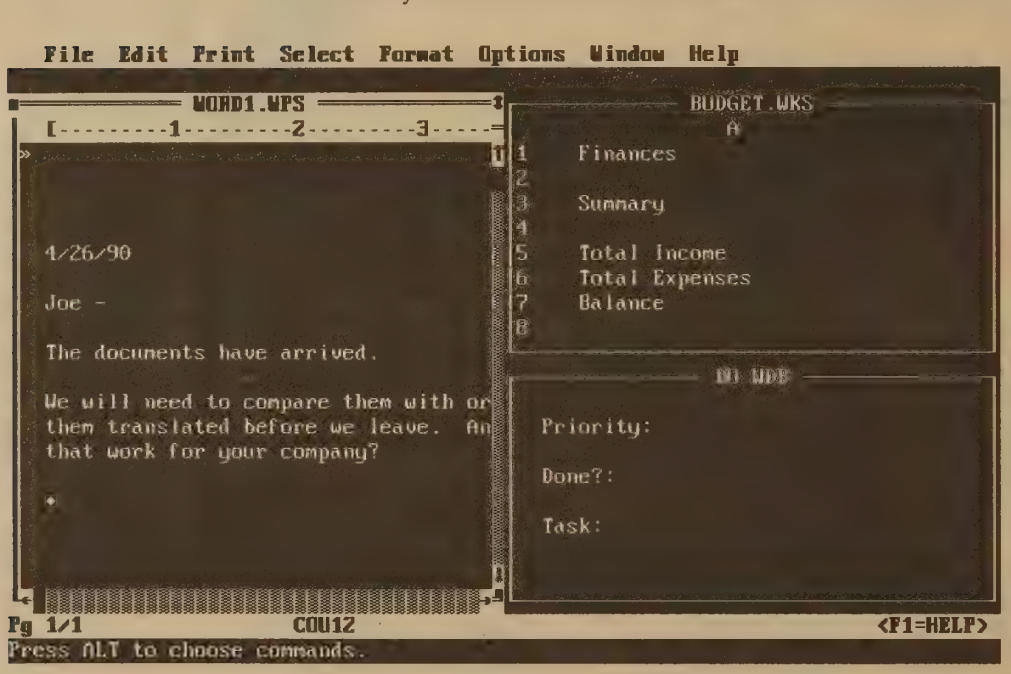
Microsoft Works 2.0 For The PC

Swiss-Army-Knife Software For The Business User

BY BIRRELL WALSH

Microsoft positions Works 2 as an all-in-one solution, and you might well use it as your only program. The software gives you a word processor, a database, a spreadsheet, a communications program and, now, a chartmaker. You could do a great deal with no other program on your machine. I have seen a fair-sized mail-order business operated with nothing but Works.

Since the street price is usually $100 rather than the list $149, you can cover all your basic software needs for less than most standalone programs cost. I, on the other hand, already have a lot of software lying around; I keep Works 2 on my hard disk because it has too many uses to give it up.



Works integrates a number of tasks effortlessly.

DATABASE MODULE

The database, for instance, is a serviceable flat-file module. It is easy to construct a new database, easy to design (and preview!) reports, easy to mail-merge. I keep all of my business income and expenses in Works 2. I use it because I can create a new report in less than 20 minutes.

The report design is simple and flexible: you can use one report as the basis for another, or design from scratch. All the font and format controls from the word processor and the spreadsheet are available for you to use within the report designer. You can have multiple fonts, boldface, and left-, right- and center-justification. The Works database understands mailing labels (as many databases do not) so you can quickly print them out in side-by-side format. It is just the sort of casual database we all need part of the time, and that we don't want to spend hundreds of dollars to obtain.

WORD PROCESSOR

The word processor is good: it has on-screen formatting, font control, a thesaurus, a spell checker, and headers and footers. I am addicted to Symantec's GrandView, the outliner to end them all, but I come back to Works 2 to write letters. It has excellent font control and allows me to store my letterhead as a template. It also serves as the document half of Works 2's mailmerge facility.

The printer control is better than in many word processors. Before I got Works 2, developing an envelope printer had taken hours of unsuccessful labor with my nose in the Hewlett-Packard LaserJet handbooks. In Works, it took 25 minutes of fiddling to make one template for short envelopes and one for long.

SPREADSHEET

I don't have a resident spreadsheet that I use every day. But if I need one, Works 2 has a Lotus-compatible worksheet. Because it is compatible with Lotus 1-2-3, I can import and export standard spreadsheets for others to use. It will not import or honor Lotus's extensive macro language (although it has one of its own).

But for most simple business uses, the Works 2 spreadsheet is fully adequate. It has numerous financial and statistic functions, table-lookup, and a full set of formats for its text and numbers.

CHART

The chart function in Works creates charts which can be integrated into your Works 2 word processing documents. You can select sections of the spreadsheet to chart, and then choose any of a variety of chart styles to represent the data. You can make the traditional pie chart and bar charts. You can also create multiple line charts, double y-indices, and different markers for different groups of data. You can use high-low spans, to chart (for instance) high and low stock prices or temperatures on a certain day.

Works considers the charts to be a view of the spreadsheet information, so charts change automatically if you change the data. The hot-

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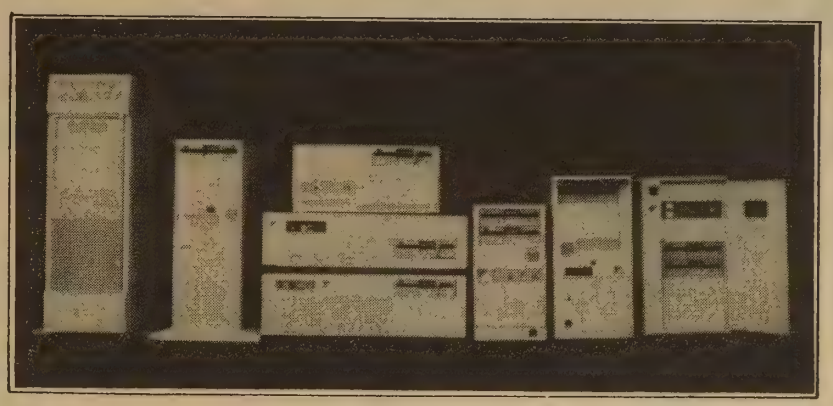

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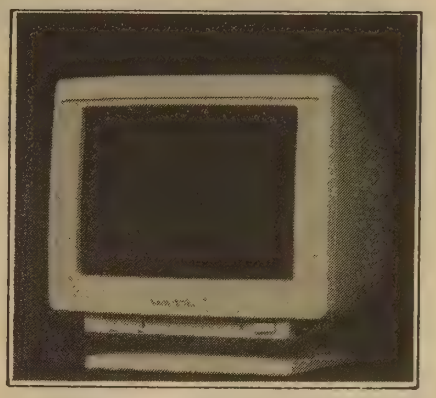

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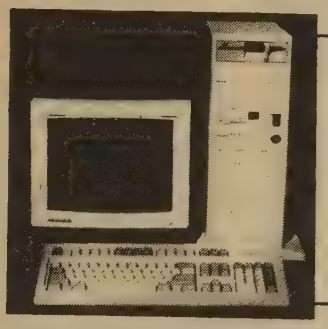

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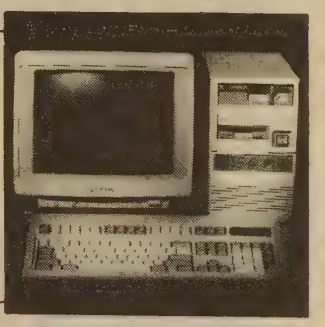

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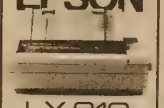
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link works even if you include the chart in a word-processing document.

OTHER FEATURES

Works has a solid, though simple, macro recorder. You can record sequences of keystrokes, and include pauses in them. Those pauses may be for a time-interval, or for fixed or variable-length input. You can even nest a macro definition. The user can type in data which Works will then "play back" at a number of different locations. The macros are able to work across all of Works 2's modules, so you can move data among databases, spreadsheets, and word processor documents with a single macro.

You could do a great deal with no other program on your machine. I have seen a fair-sized mail-order business operated with nothing but Works.

The communications facility is adequate. I would call it quite sufficient, but it hangs occasionally when it encounters the WELL. The WELL, Sausalito's arcane and illuminating bulletin board, will defeat communications software if it can be defeated. Works 2 occasionally scratched its head and refused to go any further after its first dialing attempt. With more pedestrian connections, like CompuServe, the software signed on without problems the first time.

So what *don't* you get with Works 2? The far reaches of each software category. The database is not relational. The word processor does not handle columns and cannot embed graphics, other than charts from the Works 2 spreadsheets. The macro language does not make conditional branches. In most cases you don't need what Works doesn't have.

It's the little things that make software usable and pleasant. Microsoft seems to have listened to the many users of Works 1 in designing Works 2. The user can choose whether to work in text or graphics mode—in graphics mode you come much closer to seeing on screen what you will actually get when it is printed. The full-screen preview allows you to see how a chart or a document will look when you print it, which saves you a lot of paper and aggravation. You can open many windows on the screen at once (tiled, overlapping or stacked windows, as you choose), and cut and paste among them.

I'm addicted to Symantec's GrandView, but I come back to Works 2 for letters. It has excellent font control and allows me to store letterhead as a template.

If you are a beginning user or a laptop owner, Works 2 will appeal to you as an integrated solution. If you already own a lot of software, you may buy Works for the convenience of having an all-in-one tool on your disk. ■

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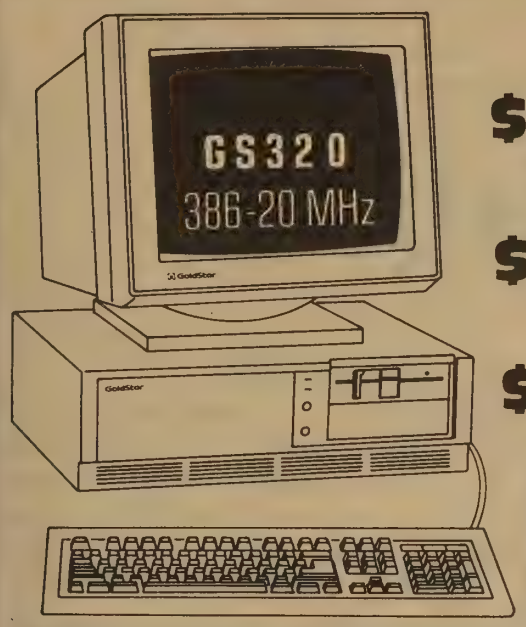

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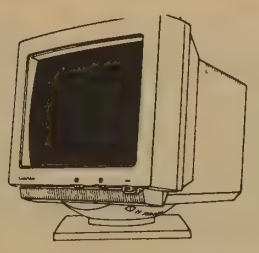

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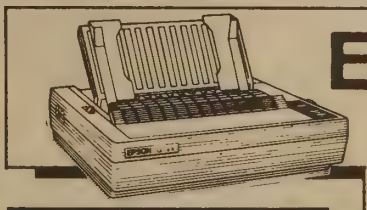

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Testing And Troubleshooting

BY WAYNE A. YACCO

One of the IBM PC's most useful qualities is the large number of third-party vendors attracted to it. Virtually no application plum has been left unplucked by vendors in search of a niche. Unfortunately, there hasn't been enough cooperation in these efforts, so when the fruits of these vendors are tossed together in a computer version of ambrosia, there are often conflicts.

LOCAL AREA NETWORKS

As a result, you will encounter glitches with unfortunate frequency when you configure PC-based LANs. Even machines like the PS/2 and Macintosh, which have intelligent buses, can be perplexing if software, cables and terminators are incorrectly installed. It's just part of the territory with any complex system. This column and the one to follow are about tools that can make the experience less trying.

TESTING TOOLS

These tools can be roughly divided into software and hardware categories. Network monitors, diagnostic software, and remote-control programs can all be used to help diagnose certain types of network problems. Network monitors are particularly useful for fine-tuning performance and eliminating bottlenecks. Often these applications can be used to decide when to add additional servers or when to modify the topology of the network.

Diagnostic software can be useful during configuration. These applications can disclose the contents of I/O memory space (where ROM-based BIOS addresses, shadow RAM, and EMS pages are often mapped), interrupt assignments, port assignments, and DMA assignments. This allows you to compare available resources with those required by the network's hardware, firmware, and software.

Remote-control software can help an administrator or support specialist to solve user problems without physically visiting network nodes. Simple mistakes in the use of applications or system software can be dealt with efficiently using these programs. We will take a closer look at several products in each of these software categories next month.

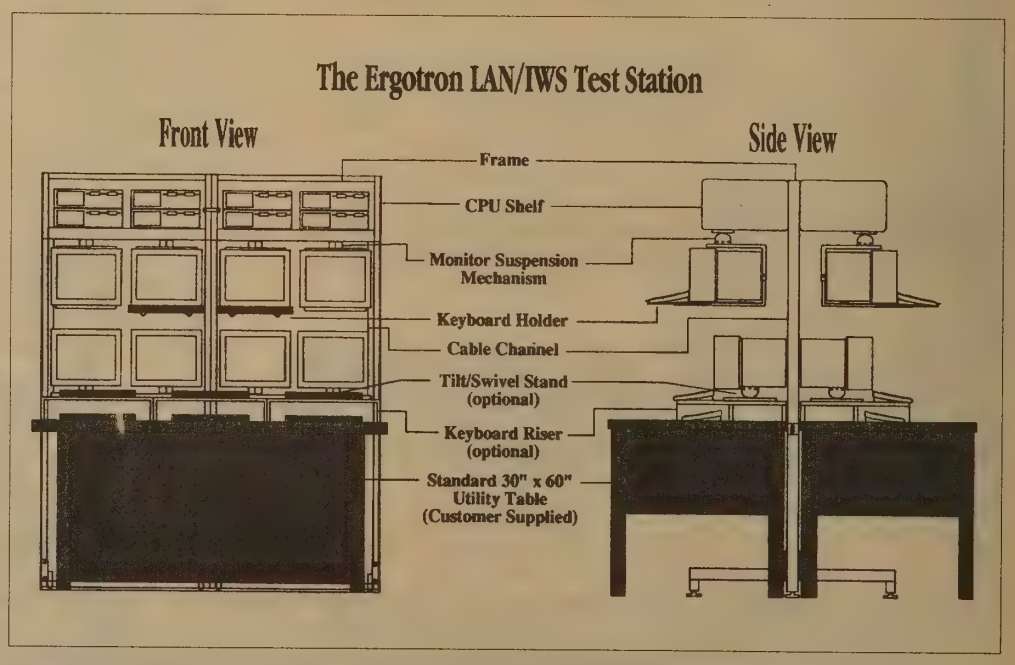
Hardware tools include network analyzers and work centers, and accessories that can be used to isolate and test the connections between nodes. Network analyzers won't be covered here for two reasons. Firstly, they are similar to the software monitors that we'll look at in next month's column. Secondly, and more importantly, they are packaged as a bundle with dedicated hardware and are intended for the professional doing network analysis on a regular basis. The manager of a small network is unlikely to be able to justify dedicating an expensive piece of hardware to this task and is more likely to rely on a software solution that uses a standard PC. That leaves work centers, tools and materials, and that's what I want to talk about now.

TEST CENTERS

When things start going wrong in a complicated environment, it can be very difficult to isolate the cause of the problem. Symptoms may appear only intermittently, or they can be masked by other activity on the network. Whenever possible, it is best to isolate a suspect section of the network and operate it as a mini network on a workbench. This allows you to test connections and to experiment with test traffic more easily. Conducting tests at a central location provides local access to all physical connections. It also allows you to simultaneously see exactly what the users of several nodes see, and to control those nodes.

For those same reasons, using a test station is also the preferred way to go about initially configuring a system. It is much easier to eliminate cabling problems during installation when you know that all of your configuration conflicts were already ironed out on a workbench.

Figure 1 illustrates an extremely compact LAN test station capable of simultaneously testing 16 nodes in the area occupied by two office desks. This station is actually com-



Ergotron's compact LAN test station allows testing of a variety of equipment.

Copyright © 1990 by Wayne A. Yacco. All rights reserved. *An editor, writer, and consultant specializing in microcomputers and their business applications, Wayne Yacco writes articles, columns, and reviews for many trade and business publications. He can be reached at Box 269, Burbank, CA 91503.*

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posed of two pairs of two four-node stations, placed side-by-side and back-to-back. Such a station can be used not only for testing isolated portions of a LAN, but for the initial configuration of small LANs. Modules could be added to further increase capacity by units of four.

The test stations in the illustration are offered ready-made by Ergotron and feature keyboard holders and monitor-suspension systems that make it easier to conduct tests. The vertical design permits a large number of nodes to occupy a very small work area. However, if a testing station isn't needed on an ongoing basis, an arrangement could be laid out horizontally on ordinary shelving or desktops. While the arrangement would take up more space and make it more difficult to view all of the nodes without moving, it would be much better than going from node to node in the field. It could also be used for initial configuration of a LAN of any size, given enough space.

A second method for networking at a testing station is to share monitors and keyboards among several nodes. Special switches are available that simultaneously switch a monitor and keyboard. Unfortunately, keyboards lose their connection when switched, and many computers won't reconnect until they are booted again. It isn't practical to switch both keyboard and monitor unless you have a system that maintains this connection. However, switches can be used to put as many as four nodes on a single monitor. You can change the view, by switching, just as fast as you could turn your head to look at multiple monitors. Models are available for both 9-pin and high-density 15-pin monitor connections.

A second device that could prove useful is a BNC switch for making quick changes in thin Ethernet (50 ohm, RG 58 cable) connections without disconnecting or reconnecting cables. For example, an Ethernet switch will let you rapidly alternate several nodes into the same network configuration. It might be used for comparison testing of adapters or other components. Switches could be combined with BNC female splices and BNC T's to quickly change network configurations. BNC connectors are available in many styles, including crimp-on, twist-on, screw-in (to an F connector), and plug-in (to an RCA plug). You can customize a thin Ethernet cable in just a couple of minutes with nothing more than a pair of diagonal cutters and twist-on BNC connectors.

OTHER GOOD RESOURCES

If you have trouble locating switches or any of the parts needed to make connections, all of the material mentioned above can be obtained from Roger Specialist, an inexpensive source of many hard-to-find switches, connectors, and cables of all types.

If you're not quite ready to tackle a configuration, or to try debugging a malfunctioning network, *The Computer Networking Book* by Peter O'Dell may be for you. The new title from Ventana is ideal for new users who need a relatively non-technical introduction into networking terms and concepts. O'Dell makes sure the beginner won't overlook any critical elements in planning for a LAN, and offers a practical approach to assessing needs and evaluating alternatives. ■

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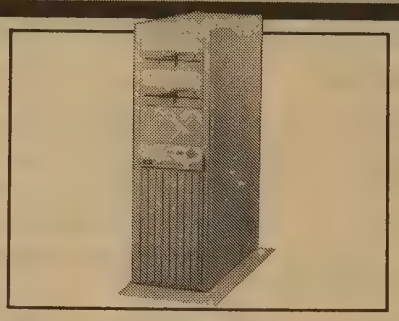

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X And SCO's Xsight

Window-Based Interface For Multivendor Networks

BY BENNETT FALK

UNIX

Developed at MIT, the X Windows user interface software has received a lot of publicity, and probably a lot less understanding. In the best UNIX tradition, X Windows is a portable graphical user interface that directly addresses the problems of using workstations in a heterogeneous network.

GUI—THE BUZZWORD FOR OUR TIME

"Graphical user interface" is one of the great buzzwords of the contemporary computer marketplace. Loosely speaking, it designates a user interface based on discrete windows in which either text or images can be displayed. Typically the user can access the windows more or less randomly, using a special device (a mouse, trackball, or lightpen) for selecting objects on the screen and moving them about.

The audience for graphical user interfaces is divided a little oddly. On one hand, GUIs are popular among experienced computer users on workstations: the GUI provides a handy way for a knowledgeable user to do a number of things at once and monitor them all on a visually pleasing display.

On the other hand, GUIs are popular among people who want to use a computer without having to learn anything in advance. A carefully constructed GUI can give these novice users an intuitively satisfying representation of the programs, files, and directories to which they have access.

Traditionally, graphical user interfaces have been intensely hardware dependent. Among UNIX workstations, this usually means that the user interface tools are built into the operating system kernel. This approach has serious drawbacks: kernel-based user interfaces tend to support only one graphical user interface per computer, and programs that use this sort of graphical interface don't usually work across a network.

Copyright © 1990 by Bennett Falk. All rights reserved. *Bennett Falk lives in the Bay Area, writes when he can, and hopes for the best. He works for Sybase, but the opinions and attitudes expressed here are his own.*

X WINDOWS—A HARDWARE-INDEPENDENT SOLUTION

X Windows brings much of the user interface capability out of the operating system kernel into a "display server" that runs as a single process, manipulating the display the user sees and exchanging information with various client processes that need to do something with the display.

The client programs are created using a library of functions (known as "Xlib") to tell the X server what to do with the display under its control. Communication between X clients and servers is handled by a special X system protocol and usually takes place over a network. With the X architecture, client programs and servers need not run on the same computer; indeed, clients and servers may run on computers with different architectures.

YES, BUT...

Conceptually this is all very fine, but a user's first exposure to an X system is likely to be disappointing. The disappointment arises from the fact that what MIT distributes is a library of low level display functions and a collection of demo programs to show off what an enterprising programmer can do with Xlib. The X architecture leaves most of the decisions about the actual appearance of the user interface to the programmer.

Consequently there is a brisk market for "higher level" products that use the X windows tools to implement a specific interface design. Usually the interface design comes as a set of window gadgets, or "widgets," that can be used to give a certain look or feel to the windows. Indeed, one outcome of the corporate wars fought over UNIX in the last three years is the endorsement of X Windows by the Open Software Foundation (IBM, HP, DEC, and their cohorts) and the development of "Motif," a window manager and a set of widgets to implement a user interface standard for UNIX. (AT&T and Sun have a rival interface standard called "Open Look.")

Even a widget set is not a very satisfying thing for a user because it is still basically a developer's tool. The widgets do embody some policy decisions about what windows should look like and how they should behave, but the widgets themselves are not really a full-fledged user interface.

SCO'S XSIGHT—A NEW LEVEL OF X

At a slightly higher level, there are products like SCO Xsight. Xsight is a version of the X Windows user interface produced by Locus Computing and marketed by the Santa Cruz Operation for SCO XENIX and SCO UNIX.

There are two Xsight products: a development system for constructing new X Windows client programs, and a runtime system that includes an X Windows server and assorted clients. The development system doesn't contain the runtime system, so developers will need both products.

In the best UNIX tradition, X Windows is a portable graphical user interface that directly addresses the problems of using workstations in a heterogeneous network.

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The Xsight runtime system consists of a display server, a Motif window manager, and a number of client programs to do useful things. There are also utilities to manage X Windows' configuration. The Xsight runtime system is essentially an off-the-shelf graphical user interface that can be plugged into any appropriately configured SCO UNIX or SCO XENIX installation.

The Motif window manager is a joy to use. The windows come up in pleasing colors with frames that have a vaguely art deco, "carved in granite" look. One nice feature of Motif is that the icons for any active clients are collected in a window reserved for the window manager. (Other window managers allow icons for active clients anywhere on the desktop.)

One outcome of the corporate wars fought over UNIX in the last three years is the endorsement of X Windows by the Open Software Foundation (IBM, HP, DEC, and their cohorts).

Xsight also includes a filesystem manager called Xhibit that runs in a desktop window, an X client named "xdt". The desktop window provides icons for basic operating system functions like electronic mail, editing, printing, reading the manual, and system administration. It also provides a window-and-icon based representation of directories and their contents.

SCO UNIX Revisited

Some friends suggested that the recent benchmark of SCO UNIX published here might not show that product off to its best advantage. The earlier benchmarks were run on a 16MHz Wyse 386 with 2 Mb of RAM. SCO UNIX will run with 2 Mb of memory, but it won't run happily. SCO recommends running the system with at least 3 Mb of memory.

When the memory on the Wyse was upgraded to 6 Mb last month, I took the opportunity to benchmark SCO UNIX again. With additional memory, the performance of SCO UNIX improved dramatically on the compilation and the multiuser tests. Clearly the additional memory allowed the operating system a good deal more I/O optimization than was possible in the 2 Mb test. The differences were less striking on the tests that exercise only disk reading and writing, but there was still a modest improvement. The CPU intensive tests were least influenced by the addition of memory. The results of both benchmarks are reproduced in the table below.

SCO UNIX is simply designed for a more generous hardware configuration than XENIX was designed for, and using it outside the range of configurations for which it is intended may affect performance adversely.

—Bennett Falk

TABLE 1: COMPILATION

SCO XENIX (2 MB)	SCO UNIX (2 MB)	SCO UNIX (6 MB)
Compiling dwrite.c		
4.76	14.55	5.7
1.11	1.25	1.19
1.39	2.34	1.42
Compiling dread.c		
3.4	12.64	4.97
1.11	1.28	1.25
1.12	2.17	1.35
Compiling fcalle.c		
2.81	11.4	3.99
0.7	0.57	0.54
0.99	1.94	1.17
Compiling fcalla.c		
2.62	10.86	4.04
0.57	0.45	0.46
1.03	1.93	1.13
Compiling loop.c		
2.83	11.73	4.41
0.65	0.61	0.57
1.07	2.02	1.32
Compiling pipes.c		
3.1	11.74	4.68
0.94	0.97	0.91
1.08	2.14	1.41
Compiling scall.c		
2.73	10.97	3.91
0.62	0.48	0.45
1.02	1.92	1.15
Compiling sieve.c		
3.01	11.53	4.79
1.07	1.05	0.99
1.04	2.09	1.37

TABLE 2: I/O INTENSIVE TESTS

(all times recorded in seconds)

XENIX (2 MB)	UNIX (2 MB)	UNIX (6 MB)
Executing dwrite		
0.33	0.9	0.88
0	0	0
0.25	0.32	0.3
Executing dread		
0.65	1.06	0.89
0	0	0

TABLE 3: CPU INTENSIVE TESTS

XENIX (2 MB)	UNIX (2 MB)	UNIX (6 MB)
Executing fcalle		
0.34	0.59	0.5
0.2	0.2	0.2
0	0.06	0.05
Executing fcalla		
0.13	0.39	0.25
0	0	0
0.01	0.03	0.02
Function Call Overhead		
0.21	0.20	0.25
Executing loop		
1.8	2.24	2.19
1.7	1.7	1.7
0.03	0.08	0.1
Executing scall		
2.45	4.04	3.85
0.25	0.39	0.55
2.13	3.32	3.15
Executing sieve		
(100 iterations 1899 primes.)		
9.05	9.28	9.48
8.9	9.1	9.37
0.04	0.06	0.05

TABLE 4: MULTI-USER TESTS

XENIX (2 MB)	UNIX (2 MB)	UNIX (6 MB)
Shell 1		
2.47	4.21	2.38
0.08	0.11	0.1
0.6	0.91	0.72
Shell 2		
2.18	4.56	3.81
0.18	0.25	0.22
1.2	1.48	1.39
Shell 3		
3.45	10.07	5.42
0.18	0.39	0.35
1.86	2.2	2.01
Shell 4		
3.86	12.75	6.71
0.31	0.49	0.53
2.32	2.93	2.7
Shell 5		
4.77	19.88	8.33
0.38	0.64	0.61
2.91	3.77	3.38
Shell 6		
5.71	23.75	9.7
0.48	0.84	0.76
3.53	4.46	4.12

(Times are expressed in seconds and represent the average time for ten iterations of each test.)

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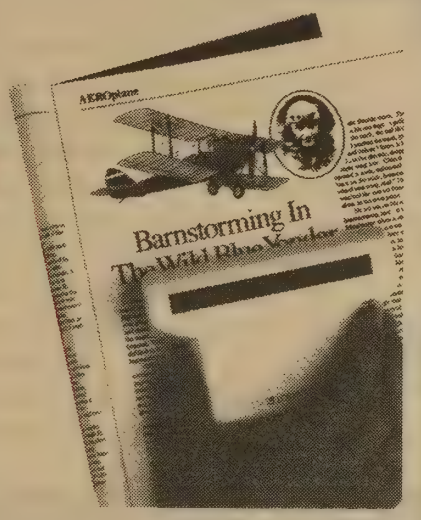

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The visual interface to the UNIX filesystem works reasonably well. There are clever icons for the root directory, for the user's home directory, and for things to which the user has no permission. The icons are fairly large, and viewing all the contents of a directory with lots of entries on a 12" monitor will require quite a bit of scrolling.

The iconic interface to operating system facilities like editing and electronic mail is less successful, because the desktop window simply calls the standard UNIX programs. For example, the "Edit" icon starts the "vi" editor in a shell window. The UNIX utilities know nothing about the graphical interface from which they've been called, so there is usually no help available, and the mouse won't be of any use in moving the cursor.

In addition to the Motif window manager and Xhibit, Xsight includes a number of client programs from MIT, a text editor, a desktop calculator, an X client for viewing UNIX manual pages, and other utilities for viewing files in various graphic formats.

The Xsight user documentation is a good introduction for users who might not be familiar with point-and-click interfaces. The pictures of screens in the documentation don't do justice to the actual screens' appearance. The administrator's guide includes useful information for changing various aspects of the Xsight configuration. It would be helpful if the online manual pages for the various X Windows programs were reproduced in the printed documentation.

With the X architecture, client programs and servers need not run on the same computer; indeed, clients and servers may run on computers with different architectures.

Although the components of Xsight come from various sources (MIT, the Open Software Foundation, Locus, and SCO), it is a surprisingly well integrated product. (Some of the MIT client programs represent an approach to windows that is different from that used by Motif.) SCO also markets a product called "Open Desktop"; though this is also X-Windows based, it should not be confused with Xsight. Xsight is an implementation of the X Windows graphical User Interface for UNIX and XENIX. Open Desktop is something more ambitious, essentially an "instant workstation" that integrates applications with the X Windows display system.

Xsight is a relatively painless way to get started with X Windows. By itself, the runtime system really will help novice users feel less pain and experienced users be more productive, and users of all sorts will be able to take advantage of commercial and public domain X-based software. ■

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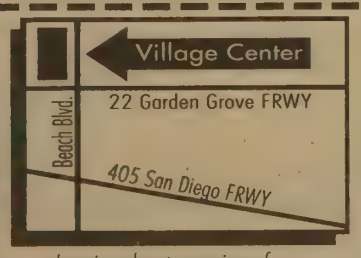

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Portables Attain Critical Mass

BY ED KAHN

On May 9-10, the second annual Portable Computing and Communications conference, essentially a trade show which focuses on portables and laptops, was held in Anaheim. The conference is a good place to go to observe the general trends in the industry.

This year was marked by a much more extensive schedule of talks and symposia featuring lots of the best known names in the industry: George Morrow, Jerry Pournelle, Mark Eppley. The keynote address was delivered by Dr. Stav Prodromou of Poqet Computer Corporation.

Once considered a niche market, portable computing is now big business.

But the most interesting aspect of the show was the products that vendors from around the country brought to show off. Unlike last year, there were no really revolutionary products, perhaps because portables have in some sense staked their territory.

A year ago there were no notebook computers; this year it seemed like every vendor had a notebook entry or two. The notebook field is still dominated by Toshiba, Compaq, Zenith and now Texas Instruments. But there were so many more vendors with good solid laptop entries. Little companies I've barely heard of were there with acceptable models—most of the me-too variety with little except price to set them apart from the competition.

What struck me was the incredible number of vendors with add-on products tailor-made for laptops. Most conspicuous were the modem and fax board makers. Where there was really only one good tiny modem a year ago, this year there were nearly a half dozen cigarette-pack-size external modems on display. Even more impressive was the number of vendors making internal modems to fit the most popular portables. Nearly every manufacturer offers a good quality 2400 baud modem, but these independents had more bells and whistles at a lower price than the big-name vendors. There were acoustic couplers that weighed less than a wrist watch. All of this demonstrates that what was once considered a niche market is now big business.

Software vendors were also there, but I didn't see any with laptop-only products. Last year I remember both a cursor enhancement program and a word processor specifically designed to overcome some of the limitations of laptop displays. This year the category that was well represented was contact management software, designed for sales people or others who need to integrate the computer with telephone sales and followups. These sophisticated programs combine a database of clients and their qualifications. You can use these programs to organize a whole telephone or direct-mail campaign. Reminders will pop up on days you have selected; you can, with the touch of a key, find all of the customers interested in a certain product or service. The people who put these programs together obviously feel that they are a perfect match for portables so you can take your office with you.

The only one of these programs I've looked at is The Maximizer ($295). This is truly an incredible program. It allows you to set up client profile forms with attached characteristics that can be cross-indexed and searched for an infinite number of categories or combinations. It easily accommodates client followup and time planning.

COMPUTER OF THE MONTH: THE MITSUBA NINJA-12V

Mitsuba is not exactly a household word, but the company has been in business since 1980, when they began marketing products designed for the Apple. Today they offer products ranging from 386 workstations to high-quality monitors.

The Ninja-12V is a beautifully designed 15-pound laptop powered by an 80286 processor running at either 6 or 12 MHz. This computer offers everything, but at a price ($3,995) considerably less than the competition's. Laptops have become so similar these days that price is one of the main differences, provided the computers have the features you want.

The Ninja has a conventional design, but everything works perfectly and there are a number of options for expansion. Standard configuration is one megabyte of RAM, expandable by the end user to five megabytes. The memory above 640K is configurable as either extended or expanded memory conforming to the LIM 4.0 standard.

What I like about the expansion design is that it takes standard SIMM chips. If you want to expand by only an additional megabyte, you use the 256K SIMM memory. If you are going all the way to five megabytes, you expand with four one-megabyte SIMM memory expansion chips. This is a distinct advantage over computers that require you to use their own overpriced proprietary memory.

The overall size of the unit is roughly 13" X 13" X 3" with the screen revealed when you open the hinged cover. The generous 6" x 8" display is a backlit VGA screen which features black letters on a paper white background. This is as clear as any screen I have seen. Brightness and contrast controls allow you to adjust the display to your taste.

The keyboard is a full 82 keys, offering an exceptionally nice layout as well as touch. An embedded numeric keypad can be accessed either through the Num Lock key or an Fn key. While I generally do not like this setup as well as separate numeric keypads, the small overall size pretty much requires this kind of layout. I do really like the fact that there are separate cursor control keys, as well as a column at the extreme right with End, Home, Pg Up and Pg Down keys. This means that you don't have to use the cumbersome Fn key to access these functions. Across the top is a row of ten function keys that can also access function keys 11 and 12.

In addition to the good layout, I also really like the feel of this keyboard. It is not spongy and offers just the right crispness to make

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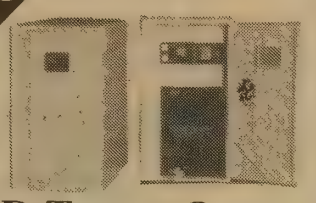

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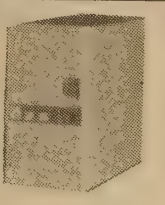

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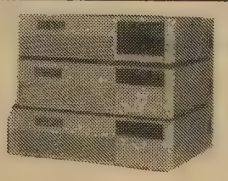

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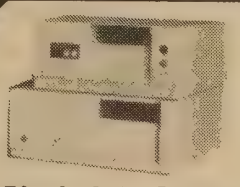

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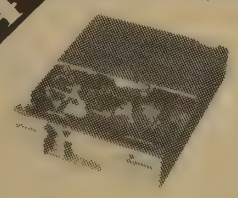

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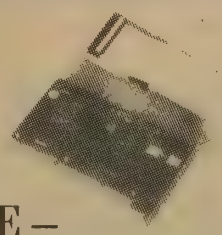

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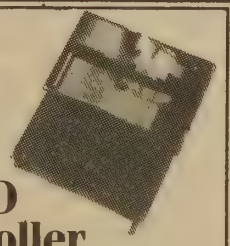

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accurate typing easy. If you want a separate numeric keypad ($75), one is available. If you don't like the keyboard, you can attach an IBM compatible keyboard through the same port that connects the numeric keypad. This is an exceptionally well thought out design.

Like so many of the laptops these days, this one comes with a 40 Mb hard disk. Although the system comes with DOS 3.3, Mitsuba has chosen a BIOS that allows this entire 40 megabytes to be set up as a C drive. Generally, DOS 3.3 requires that you divide the hard disk into partitions no larger than 32 megabytes. I prefer to be able to handle this entire space as a single drive, so Mitsuba's decision is a real plus.

The Ninja comes with an internal nickel-cadmium battery that will power the system for a couple of hours. At that point, you can use an extra battery ($150) or recharge. Of course, you can work from the AC power supply. A full recharge takes about six hours. An indicator, along with warning lights and sounds, tells you when you are running the battery to a dangerously low level.

Mitsuba has gone to great lengths to make sure you don't waste power. An easily accessed setup program lets you define default lengths of time for the powering down of both the hard disk and the backlight on the screen. A touch of a key brings both back to life. When the computer goes into sleep mode, it also changes to the 6 MHz speed as another power conservation effort.

A range of products is available to complete your system. There is an external 5.25" floppy drive ($365). A 2400 baud internal modem is also available for the incredibly low price of $230. I haven't tried either of these products. And finally, a padded carrying case ($75) that can even hold the external disk drive is offered. All in all, this is a well-rounded product that will serve you well. These guys have thought of everything and provided all of the accessories at bargain prices.

The only weakness in the package is the instruction manual which needs to be rewritten by a native English speaker. There are typos, incomplete sentences, and no index. The computer is simple enough to use so that you should have no problem, but the manual is not up to the high standards that distinguish the computer itself. ■

One popular software category was contact management applications, for sales people or others who need to integrate the computer with telephone sales and followups. These sophisticated programs combine a database of clients and their qualifications.

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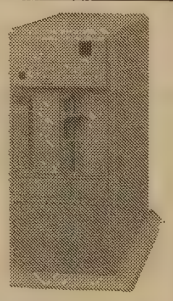

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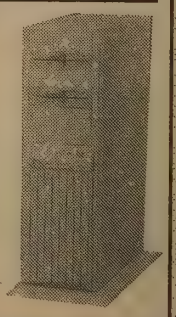

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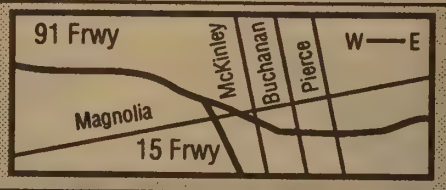

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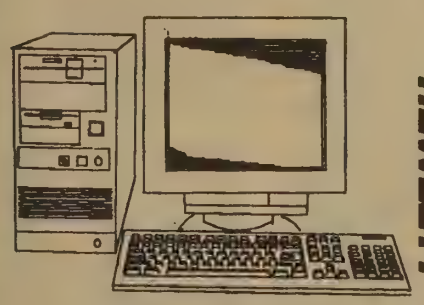

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STARTUP KIT

Customer Supp

BY MIKAEL BLAISDELL

One way or another, the startup and the existing company spend money creating, marketing, and supporting their products. Consultant Blaisdell points out that you can spend these resources early and wisely, or spend a lot more time and money in remedial efforts later.

UP A WALL

t: Design Now Or Pay Later

Doctors, it is said, get to bury their mistakes. Software companies are not so fortunate. They may have to live with the consequences of their oversights for years, with abundant opportunities to bitterly regret the long-term effects of short-term thinking.

It doesn't have to be that way. For both new software companies and existing ones considering new products, the question of customer satisfaction should be raised early and often, and in a variety of ways throughout the design, production and release cycles.

Historically, software products (especially for microsystems) have generally begun as the proverbial gleam in someone's eye, followed quickly by the first programming attempts to translate the dream into executable code. Somewhere along the line, usually just before the release date, the documentation gets hurriedly put together along with the marketing materials, and the proud and hopeful creators go off to COMDEX, UNIFORUM, or some other trade show as appropriate.

Encouraged by a pocketful of orders, significant contact notes and hundreds of business cards, the footsore and burnt-out squad returns to the shop to start making disks, drawing up dealer and distributor agreements, and revising the code to include features, enhancements and extended capacities.

Some time thereafter, the tech support phone begins to ring—loudly. And it keeps on ringing.

At first, the programming folks take the calls in stride. Most are from known people on the "alpha-sorta-beta" list, who tend to be technically sophisticated. Engineer talks to engineer, and while they may argue and even violently disagree, they both speak

continued on page 56

Tales From The Share-ware Front

BY DAN BAUMBACH

If you've written an interesting and useful program, don't overlook shareware as a marketing approach. Shareware author and current ASP Ombudsman Dan Baumbach offers advice to his would-be colleagues.

I never wanted to be a shareware author. I never even wanted to be a computer programmer.

I was working as a computer consultant and found that many of my clients who were new to computers were tearing their hair out trying to learn to use their machines.

I tried to look through their eyes, and I didn't blame them for tearing their hair out. Computers were very difficult, and most programs seemed like they were designed to be used only by other programmers.

I looked for an easy program to help people navigate around their machines. I got tired of spending money and being disappointed. So I decided to write one myself—I'd written a number of applications in Turbo Pascal, and even sold one to a number of banks. And I'd just started learning C, so I thought this would be a good challenge.

As the program neared completion, I started showing it to a few friends and acquaintances. Many were very encouraging. One went so far as to say, "This is a great program. You should release it as shareware."

SHAREWARE?

I'd never thought of that before. I wasn't a big user of shareware, despite the fact that I used and like Qedit, a popular shareware editor. Most of my experiences were negative—it was too expensive and difficult to navigate around CompuServe looking for good software, and I didn't have the patience to be constantly downloading programs, most of which turned out to be junk. But *publishing* shareware—well, it didn't cost anything, so why not?

I looked at all the shareware programs I had, examining how the manuals were put together, how the disclaimers were written, how the registration forms were designed. I put together my own manual by imitating the best features of the ones I'd looked at.

I first uploaded my program, Director, to CompuServe in July 1988. I had no idea what to expect, but lo and behold, two weeks later a check arrived from a guy in Philadelphia. Two weeks after that there was another from someone in Montana. Pretty neat!

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STARTUP SURVIVAL KIT

Shareware

continued from page 51

The registrations have become more frequent since then, but I'm far from being able to make a living from Director. However, I've met some incredible people I don't think I'd have met otherwise. I think the thing I like best about the shareware world is the contact that I get with end users, and their suggestions and complaints.

One day there was an email message on CompuServe saying that Director was a good program, all right, but I should give it UltraVision capability. UltraVision is a product by Personics that allows your EGA or VGA display to use different fonts and colors, gives you an number of options for extra columns and rows onscreen, and provides better resolution if you've got a multiscanning monitor. Well, I wondered, I've got a plain EGA, and I've already made Director compatible with 43- and 50-line display—why does it have to be UltraVision compatible?

I decided to call this guy's bluff. I answered his message, asking him if he'd register if I made Director UltraVision compatible. His answer: "Yes, I'll register, but I'll do it through my company, *PC Magazine.*"

Two days and a hundred-dollar CompuServe bill later, Director was UltraVision compatible.

SUPPORT AND ENHANCEMENT—A NEVER-ENDING TASK

When you write a program that tries to squeeze as much performance as possible from the hardware, "IBM compatible" takes on a whole new meaning. A computer that's 99.99% IBM compatible might not be compatible enough.

Case in point: in order to read the disk very quickly and display a directory tree, Director had to know some basic formatting information about the disk. There are two ways to get this information: one, the way Microsoft provided and documented, and another using a non-documented DOS function call.

Originally I chose the non-documented way, because it was faster and it worked with every version of DOS I tried, from 2.1 to 3.3. Occasionally "real programmers" would get on my case about using non-documented DOS functions, because you never know whether they'll be supported in future versions of DOS.

When I made Director compatible with large partitions in Compaq DOS 3.31 and DOS 4.0, I changed to using the documented approach, again for speed reasons. This consisted of reading a portion of the disk called the BIOS Parameter Block and getting the formatting information from that. And I felt better using the "legitimate" approach to the problem.

Shortly after releasing this version, I got an order from a hospital in Tennessee for a site license for 200 copies. The PC manager had tried Director on his machine at home and loved it. We agreed on a price, and he set the machinery rolling at his end.

A few days later, I got a frantic phone call from him. Apparently, Director was crashing on all the machines at the hospital. It wasn't even loading up correctly.

As it turned out, all the machines in the hospital were from one well-known compatible vendor. Several very long days and nights later, I discovered that the disks formatted by this Fortune 500 company's version of DOS didn't have BIOS Parameter Blocks.

When I went back to using the non-documented way of getting the disk information, the program ran fine. Well, almost: the computers also didn't report the correct row and column information, so I had to code a fix around that too. No-name clones seem to be more IBM compatible than this particular vendor's machines in this situation.

While writing this article, I got a call from a user who wanted to know if I was thinking of making Director DESQview compatible. I told him many registered users run Director under DESQview every day. True, he admitted, but he pointed out that under DESQview you must run Director in a full-screen window which you can't shrink. However, the caller still liked the program so much he wanted to register three copies anyway.

I'm always ready to add a new feature to Director if it makes the program more marketable and doesn't detract from its performance, so I borrowed my friend's DESQview manual and added a few lines of Assembler from the back of the manual to make Director "DESQview Aware." I tested it on my friend's machine, and everything worked fine. Of course you couldn't see anything in the shrunk window, but if that's what the users wanted, who was I to argue? I could already see the line "Director is DESQview Aware" in my next press release.

Soon, I started getting calls. "Something's wrong with my copy of Director; every time I run it, I get DESQview QEMM errors." "Director runs fine on my machine, but if I try to run it under DESQview, it crashes."

Of course none of these calls came from people around the block. My theory is, the more difficult the problem, the further away the user.

Since the program worked fine under DESQview on all the machines I had access to, and not on the ones that were 1,000 or more miles away, and I wasn't a DESQview user myself, I took out the extra code. Director is now back to its Unaware self, and runs just fine under DESQview using the full screen.

My latest problem also has to do with DESQview. Director has been tested with DOS 4.XX disk partitions up to 150Mb both conventionally and under DESQview, and it works fine. Director also runs fine with large partitions created by Speed Stor and On-Track Disk Manager. However, a loyal user in San Diego put large Speed Stor partitions and DESQview together and crashed Director. Even stranger, earlier versions of Director worked fine on this setup. At least I have the earlier code, so I can see what minute changes may be causing the problem.

This is a constant problem for the small developer. Just when you think you've tried your program on every machine, monitor, and hard drive combination out there, someone comes along with another combination that brings your program to its knees.

I FIRST UPLOADED MY PROGRAM, DIRECTOR, TO COMPUSERVE IN JULY 1988. I HAD NO IDEA WHAT TO EXPECT, BUT LO AND BEHOLD, TWO WEEKS AFTER THAT THERE WAS A CHECK FROM PHILADELPHIA.

The nice thing about it is that many of these people will like your program anyway, and will call you and tell you about the problem. These are the people who turn out to be your best beta testers.

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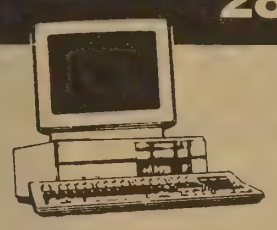

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STARTUP SURVIVAL KIT Shareware

ASSOCIATION OF SHAREWARE PROFESSIONALS

About six months into my career as a shareware author, I joined the Association of Shareware Professionals, mostly because I thought it would be interesting to see what these people had to say. It turned out to be one of the best things I've done.

While I'm not an official spokesman for the all-volunteer ASP, I can explain that it has two main goals.

First, it seeks to elevate the quality of shareware so it's comparable to or better than more traditionally distributed software. Before you can join ASP, your programs must be approved by the membership board. ASP authors must also abide by minimum support requirements and agree not to cripple or inadequately document their unregistered programs.

The second goal is to educate the public about shareware—that shareware is not free, that it's a method of distribution whereby users get to try the program to see if they like it before they pay for it. However, if they like and use it, the must register and pay for it. ASP stresses that buying a program from a shareware disk vendor does not constitute buying the software, which is done by registering with the author. ASP recently began accepting associate memberships from disk vendors, who must clearly state in their catalogs what shareware is and how to register it with the author.

ASP wants the public to have the assurance that buying from an ASP author means getting high quality software with high quality support at a reasonable price. Some users are admittedly wary about buying a product from a tiny company. To address this concern, ASP created the position of the ASP Ombudsman.

Since ASP is an all-volunteer organization, last October I was asked to serve as the ASP Ombudsman. Since then I've received many questions about ASP; many frantic users looking for missing authors (none of whom turned out to be ASP members), and a few complaints. Only recently have I received any complaints against ASP members—I'm still trying to contact one of the two authors, and the other has agreed to leave ASP because he won't provide the level of service it requires.

For me, the best part of ASP has been hanging out on CompuServe with all these great people. Most shareware authors are people like myself who just happened to get into it. Since most of us are spread all over the country, we've had no one to talk to, ask questions, and share information with, and this is a welcome resource. ASP has four forums on CompuServe: IBMJR 8, 9, 10 and 11. IBMJR 8 and 9 are open to the general public; to get there type GO SHAREWARE at any prompt. Also, according to a recent arrangement with CompuServe's management, when you register any ASP program, you can get a free membership to CompuServe with a $15 usage credit.

If you just want to use US Mail, you can get more information about ASP by writing to ASP, PO Box 5786, Bellevue, WA 98006.

GUERRILLA MARKETING

Some people think that shareware requires no marketing—its authors, they assume, just upload their programs to CompuServe and a few BBSes and wait for the checks to start rolling in. Maybe that's worked for some people, but not many.

As with any product, the more people know about it the better. I always carry copies of Director with me, and freely give out copies to any interested parties. I've also done demonstrations at user groups in my area. Some authors even send out press releases to all the major computer publications.

The great part about being a shareware author is that it brings you constant surprises. Not long ago I was awakened at 3 am by a phone call from England; a user wanted to register five copies. Another call was from Norway—the caller wanted to distribute the program in his country. I did some checking around, we came to an agreement, and you can now buy Norwegian versions of Director, with Norwegian documentation, in Norway. Someone else who wants to distribute the software in France.

WHEN YOU WRITE A PROGRAM THAT TRIES TO SQUEEZE AS MUCH PERFORMANCE AS POSSIBLE FROM THE HARDWARE, "IBM COMPATIBLE" TAKES ON A WHOLE NEW MEANING.

THE PATH TO RICHES?

When I spoke at my local user group recently, one of the questions from the audience was whether I'd been able to buy a house in Sausalito from my profits. The answer, of course, is no. I still work out of my two-bedroom apartment in a decidedly non-yuppie part of San Rafael, and I only have a 286 computer. I make most of my living as a consultant and programmer in C and dBASE.

There are, however, quite a few authors supporting themselves quite well with shareware, and they all stress the importance of patience and persistence. Since you're usually not placing ads in national magazines, it will take people longer to learn about your product.

Director's been out for a year and a half, and it's only quite lately that people seem to be hearing about it. Just recently I've started getting a few registrations from Europe and regular registrations from Canada. With European distribution and arrangements I'm making with VARs to distribute Director with their machines, I have hopes of greater profits in the future; maybe by this time next year, I'll be able to afford a parking space in Sausalito.

My advice to the budding shareware author: Don't do it for the money. Do it for the love of programming, the love of designing a nice product that can enrich people's lives. Do it for the love of sharing that product with other users and listening to their feedback.

And, if you're lucky and persistent, you just might make some money. ■

Copyright © 1990 by Dan Baumbach. All rights reserved. *Dan Baumbach is president, owner, and employee of the month of Helpware, a shareware and computer consulting business in San Rafael. Most of his living is made by helping people with their computers and programming in C, Clipper and FoxBase Mac. He can be reached at 100 Bayo Vista Way #6, San Rafael, CA 94901, (415)453-9779 or on CompuServe 71320,1277. You can get copies of Director from him for $35 plus 6.25% sales tax, or obtain it as shareware from many disk libraries, BBSes and CompuServe.*

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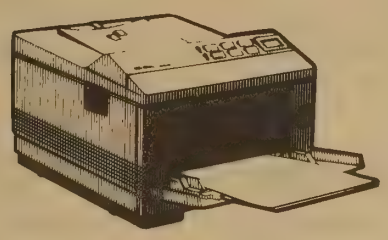

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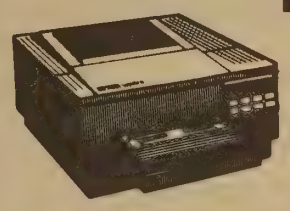

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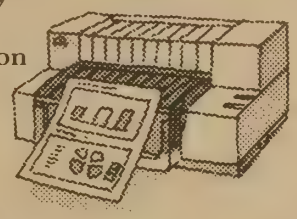

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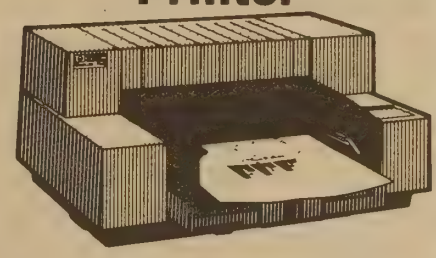

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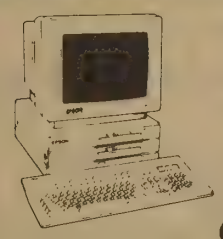

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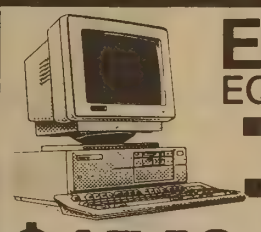

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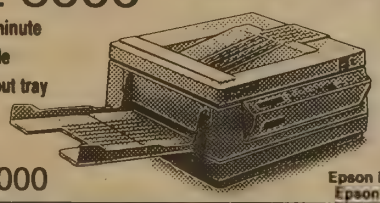

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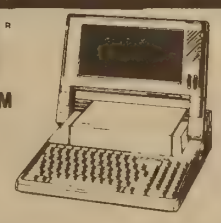

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STARTUP SURVIVAL KIT

Customer Support

continued from page 51

the same language.

Soon, however, the less-than-technical end users begin to call, and the engineers quickly become unavailable. After all, you *do* want the next release to get done, don't you?

In response to extreme pressure from both engineering and the callers, the company hires its first few technical support people and promptly feeds them to the phone lions. Some of the pressure is relieved, or at least diverted, providing a momentary breathing space for management and programmers.

The stage has been set for the repeating cycles of bug-fix/release and tech support turnover. Late in this process, with some luck, a general revision may be produced that begins to address and correct problems from the design level, and a more stable/supportable product may begin to emerge.

It is not hard to find myriads of perfect examples of this gloomy scenario. It is also not hard to avoid repeating and perpetuating that pattern, or beginning it in the first place. Product quality and customer satisfaction can be designed in from the beginning, rather than being added on.

FIRST STEPS

The process begins in the initial creation phase of the product. Instead of allowing the programmers to immediately begin coding, stop and do a thorough design stage first. In order to design effectively, you must have people with a variety of viewpoints involved, and you must listen to them. Programmer/engineers speak fluent Machine, and are unquestionably important to the project. Just as important, however, are the voices of the end users, and the experts at the job or task that the product is supposed to address. These people usually do not speak Machine, but they do know their jobs and needs very well. And, of course, it is their money that will pay your programmers their salaries and stock options.

The easiest mistake to commit at the beginning of the whole process is to focus on the technology rather than on the needs of the people who will ultimately buy the product. The siren songs of the technoids and marketers can be deafeningly loud, but keep in mind that there are very real rocks you can crash upon. At this point, the presence of the end users is critically important to provide the proper balance. You may have to work at it, but make sure that you listen carefully and keep the focus of the design effort squarely on the users, not on the machine technoglories.

The writers of the documentation group should also be present from Day One, to become very familiar with the language and personalities of the users. The manuals must be written to and for the users, not at them. The writers should also handle the help screens and error messages that will be included within the program. If your documentation team is unwilling or unable to work directly with the users, or balks at the thought of the many rewrites that will result from this approach, you definitely need some new writers. Immediately.

If you are an existing company that already has a technical support department, rename it at once to be the Customer Support department, and assign several of its members to join the design team. Ideally your writers are already members of Customer Support; if not, they should be.

At the same time, make sure your programmers/engineers are taking regular shifts on the hotlines. If that idea causes you or them to wince, you're making two serious mistakes at once. The first is letting your engineers develop "ivory-tower disease"; the second, most likely, is grossly underpaying and underappreciating the hotline staff. Both errors can be incredibly expensive in the long run.

PROTOTYPING

As the prototype versions are created, the testing cycles begin. Not only should you be giving the code a rigorous workout, you should be doing the same for the user interface and the documentation. This is a crucial time. This is where haste will very definitely make later, and expensive, waste.

Bring a number of users in to play with the prototypes, and watch their reactions most carefully. Where are they getting stuck? What seems hard or awkward? What causes them to smile? The engineers need to be present for these exercises, with taped mouths. Bruised egos are vastly easier to heal than unrecognized design flaws.

While the users are testing the prototypes, the documentation should be getting the same treatment, especially the installation procedures. Give each user a copy of the manual and a red pen, with instructions to mark any page containing confusing or ambiguous text with a large X. Note that you will need several sets of users for this process; as each tester begins to acquire some competence with the product, their suitability for testing documentation inevitably declines. The writers should be present in listen-only mode; use tape if necessary.

These testing cycles should be repeated throughout the product life span, with several iterations for each new release version. These should be formal procedures, automatically included in the overall quality assurance effort. However, the informal measures are just as important, and need to be done continuously by the Customer Support group, including regular report and analysis meetings involving engineering and management.

CUSTOMER SUPPORT

Customer Support, often mislabeled "technical support," has an unfortunate history in our industry. It is commonly treated as a Siberian dumping ground for failed engineers and/or shiny new Computer Science grads to see if they're going to be of any practical use to the company. As a result, the company and its products acquire a well-deserved reputation for poor support, which has a significantly negative effect on sales.

SOFTWARE COMPANIES MAY HAVE TO LIVE WITH THE CONSEQUENCES OF THEIR OVERSIGHTS FOR YEARS, WITH ABUNDANT OPPORTUNITIES TO BITTERLY REGRET THE LONG-TERM EFFECTS OF SHORT-TERM THINKING.

The perception of Customer Support as a necessary evil, a cost center grudgingly maintained with the minimum amount of resources, is doubly unfortunate because it overlooks or denies two very important realities.

First, in the customer's eyes, Customer Support *is* the company. Shoddy or grudging support causes the customer to view the company and its products as being of poor quality, and has a well-documented negative effect on repeat sales and word-of-mouth

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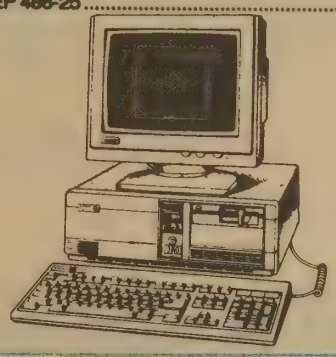

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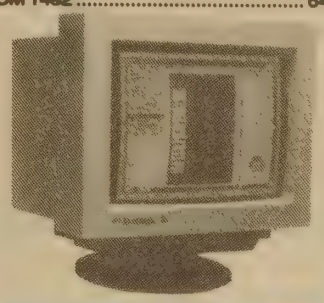

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If you are just starting out, your Customer Support group will (and should) consist of the engineers/programmers, sales people, accounting, and management. In short, everybody takes support calls. This is excellent practice, and should be jealously maintained throughout the company's growth. No company, no matter how large, can afford for its president and other members of the senior management team to be exempt from regularly scheduled hotline duties. You may not have the technical expertise to directly handle calls yourself, but you, and your engineers, need to be constantly listening to the customers' words without any filters or translations.

For established companies, the first priority of a Customer Satisfaction campaign is to revitalize the Support group and reorient the company's focus away from the technology and back to the user. The corrective measures that need to be applied to the products themselves will soon become readily apparent to all concerned from their direct hotline experiences. To further encourage customer communications, create a Customer Advisory Group and make sure it gets regular and active consultation from all areas of the company.

CONCLUSIONS: CREATING A WIN-WIN SITUATION

The vital point here is that one way or another, the company is going to spend money and time on making the product usable to the customer. If you take proper care in the initial design phase and in the creation of documentation, you'll reduce the load on the hotline department and achieve significant savings for your company.

If you ignore your customers and keep them out of the design phase, or if indeed there is no real design effort involved, the company will still spend money making the product usable—increased hotline requirements, multiple revisions and outright reworks, increased advertising attempting to counteract negative word-of-mouth effects, and staggering losses in missed opportunities for repeat sales.

The relative costs of the two approaches are incomparable. Catch-up efforts are no match for designed customer satisfaction. ■

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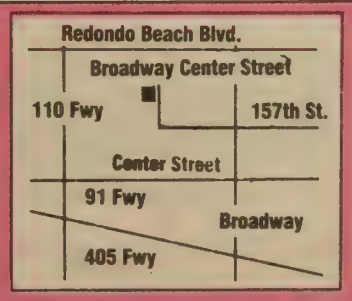

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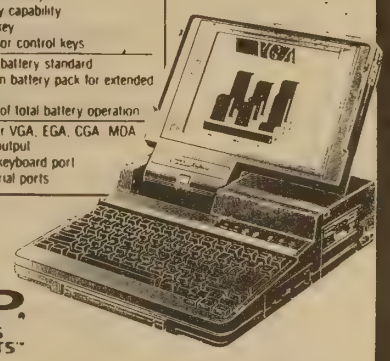

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John Wolfskill, Portable Computing Magazine, March 1990 issue

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Bruce Brown, PC Magazine, March 13, 1990 issue

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Microtimes, March 1990 issue

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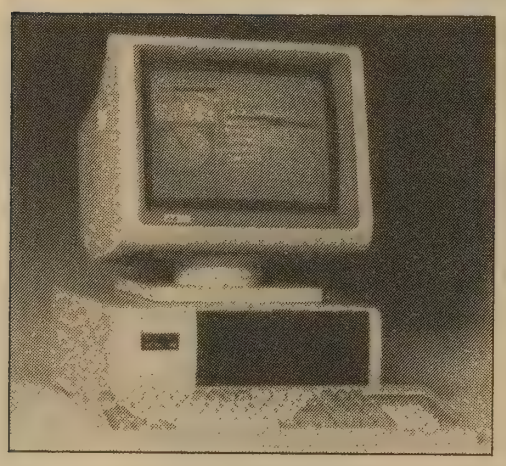
Amax Engineering Corp. has introduced the Amax 486, priced below many of its competitors. This new machine comes with 4Mb RAM and supports UNIX, XENIX, Novell Networking, AutoCAD, Windows, DESQView and IBM OS/2. Although the 486 runs at 25MHz, Amax has designed the board to be easily upgradeable to 33MHz when the new processor becomes available. It has a Landmark speed of 114.1MHz and a Norton SI speed of 41.0. Amax has an aggressive marketing plan and offers a one-year warranty for both parts and labor. ($4995) Amax Engineering Corp., 47315 Mission Falls Ct., Fremont, CA 94539. (415)651-8886, Fax (415)651-3720.

ALR OFFERS EISA-BASED I486

Advanced Logic Research, Inc. has begun shipping its new BusinessVEISA 486/25, a powerful new 25MHz i486 EISA-based desktop computer using ALR's VEISA Scalable Design Architecture. The BusinessVEISA is aimed at experienced business users seeking i486-based processing power along with a flexible CPU upgrade path



Integrated features on the 486/25 are 2Mb of memory, 1.44Mb 3.5" floppy drive, embedded AT type hard drive controller, EISA bus and ALR VEISA Scalable Architecture with a 25MHz i486 CPU. The small compact desktop design fits easily on a desk, leaving plenty of room for work space. The four models available range from Model 1 with diskette drive, priced at $4,999, through Model 110 with a 106MB disk drive, a SuperVGA card and 14" FlexVIEW 2X monitor for $7199. Advanced Logic Research, Inc., 9401 Jeronimo, Irvine, CA 92718. (714)581-6770, Fax (714)581-9240.

MOBIUS PERSONAL 486 WORKSTATION

Mobius Computer's new PWS/425C, a 486-based Personal UNIX WorkStation with high-resolution graphics, runs twice as fast as the SPARCStation I and significantly faster than the DECStation 3100. The PWS/425C uses a proprietary burst mode when accessing system memory to more

PRODUCT UPDATES

➤ **AST Research, Inc.** has released an updated software emulation package for the **AST 5251/11 Enhanced Plus Adapter,** providing greater productivity and efficiency. The software is available from the AST bulletin board at no charge. Floppy diskettes may be ordered through AST North American Services group. Contact: AST Research, Inc., 16215 Alton Pkwy, PO Box 19658, Irvine, CA 92716. 1-800-759-4278.

➤ **Farallon Computing, Inc.** has announced the latest version of **PhoneNet StarController**, an intelligent multiport repeater for LocalTalk networks. Series 300 replaces the original "Black Beauty" StarController. Contact: Farallon Computing, Inc., 2000 Powell St., Suite 600, Emeryville, CA 94608. (415)596-9020.

➤ **Fox Software** has released a free upgrade to its popular **FoxPro** database management software. The upgrade, **FoxPro 1.02**, is being sent automatically to all registered owners of single-user FoxPro, multiuser FoxPro/LAN, and FoxPro Run Time. Contact: FoxPro Software, Inc., 134 W. South Boundary, Perrysburg, OH 43551. (419)874-0162.

➤ **Samna Corp.** is offering a free update of **Ami Professional** word processor. **Version 1.2** includes compatibility with Microsoft Windows 3.0 and Hewlett-Packard New Wave. Contact: Samna Corp., 5600 Glenridge Dr., Atlanta, GA 30342. (404)851-0007.

➤ **Software Publishing Corp.** announced the release of **Harvard Graphics 2.3**. The new version integrates **Draw Partner, HyperShow** and a new **Chart Gallery**. All current users can upgrade for $75. Contact: Software Publishing, Corp., 1901 Landings Dr., PO Box 7210, Mountain View, CA 94039. (415)335-6440.

➤ **The Complete PC** announced a new version of **The Complete Half-Scanner for the Macintosh** that now supports up to 256 levels of gray at a list price of $399—$100 lower than the previous version. A free upgrade is available for registered owners of either The Complete Half-Page Scanner/400 or The Complete Page Scanner. Contact: The Complete PC, 1983 Concourse Dr., San Jose, CA 95131. (408)434-0145.

➤ **U.S. Robotics** has lowered the suggested list price on selected Courier-brand error-correcting modems. The price changes, for the **Courier HST Dual Standard, Courier V.32** and **Courier 2400cc** modems, are effective immediately. Contact: U.S. Robotics, Inc., 8100 N. McCormick Blvd., Skokie, IL 60076. 1-800-DIALUSR.

➤ An interim release of **WordPerfect 5.1** dated 3/30/90 enhances WordPerfect's spreadsheet linking, on-line help, printing, and pull-down menus. Users can order the 3/30/90 interim release program disks for $10. Contact: Information Services Dept., WordPerfect Corp., 1555 N. Technology Way, Orem, UT 84057. 1-800-222-9409.

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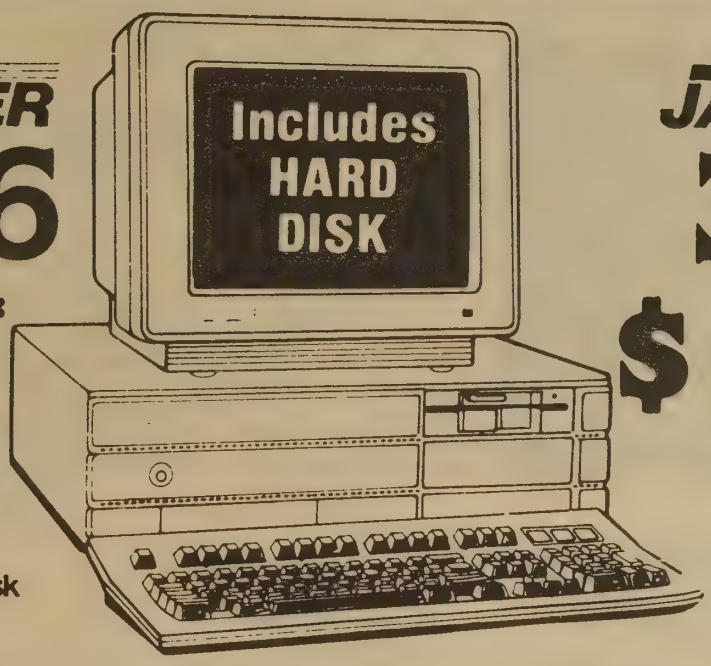

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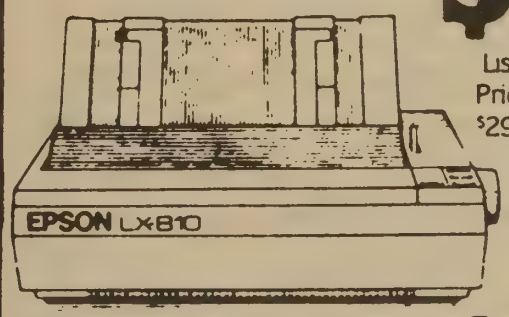

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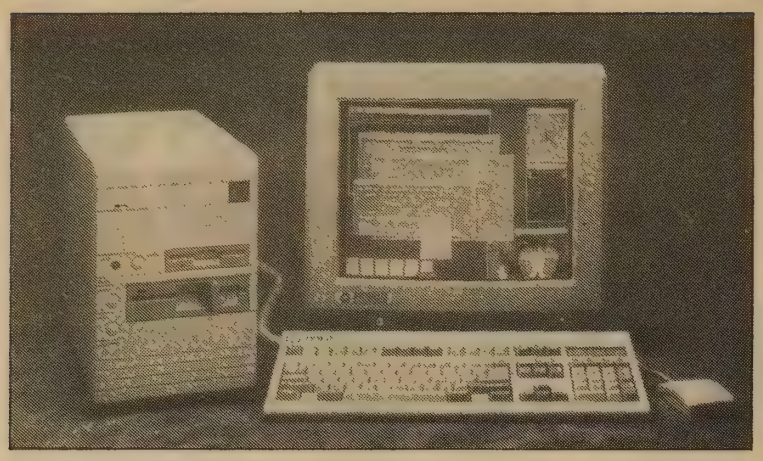


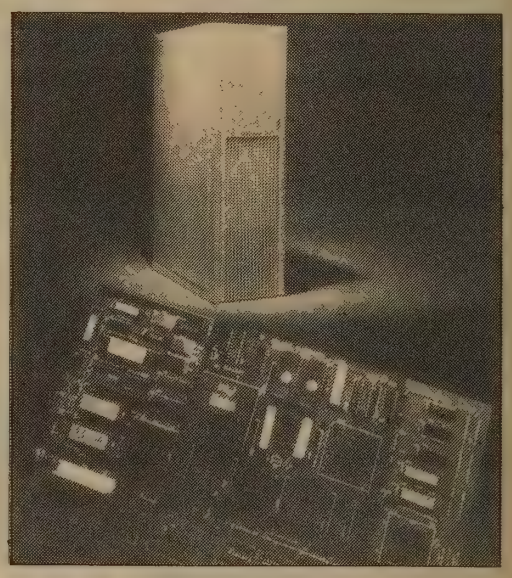
than double the CPU to memory access. The built-in 80387 maximizes floating point calculations. It also includes six ISA bus slots and four half height drive bays, as well as TCP/IP and a built-in Ethernet interface with ThinLAN and ThickLAN connections.

The PWS/425C is bundled with ISC UNIX System V version 3.2 and the X Window system version 11.3. All software is pre-installed and configured to your specifications. Mobius offers an unconditional thirty-day money-back guarantee. Mobius also guarantees every piece of equipment to be free of defects in materials and workmanship for fifteen months. ($9995) Mobius Computer Corp., 1717 Embarcadero Rd., Palo Alto, CA 94303. (415)493-7777.

EVEREX UNLEASHES NEW POWER

In addition to running applications such as financial modeling, computer-aided design and process simulation, the new Everex STEP 486/33 also works as a powerful file or data-

base server. The Everex STEP 486/33 achieves its high level of performance by also including an external caching system bases on Advanced Memory Management Architecture (AMMA). With an external cache of 128K, this dual level caching system achieves a cache hit rate of up to 99 percent. It also includes Programmable Configuration Select (PCS), eliminating the needs for users to change jumpers and DIP switches when modifying standard configurations. The Everex STEP 486/33 will be available in July with a list price of $10,499. A 25MHz version of the STEP 486, for $8999, will also be available. Everex Systems, Inc., 48431 Milmont Dr., Fremont, CA 94538. (415)498-1111.



MICRO SIMPLEX OFFERS SYSTEM 486

Micro Simplex, Inc., an Irvine microcomputer manufacturer, recently announced System 486. The system, utilizing a 25MHz Intel 80486, provides a valuable platform for multiuser and CAD applications. In opera-

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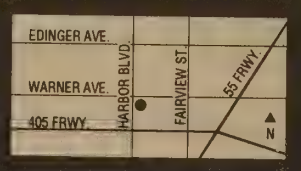

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80386 SX	16 MHz, 1 MB Memory Up to 9 MB, Monographic 640x480 VGA, 3.5" 720/1.44 MB Drive, Serial/Parallel	40 MB $3395 100 MB $3895
ProSpeed CSX	**First color display laptop computer.** 80386SX/16 MHz CPU/clock speed; up to 4 MB RAM; 1.44 MB, 3.5" floppy disk; color LCD/VGA/EGA; parallel, serial, RGB, monitor, external FDD, modem	42 MB $4795 100 MB $5395

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1MB Ram Card for ProSpeed 286	595	8 MB Ram Card for ProSpeed 386	2695
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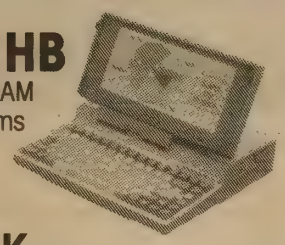

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tion since January, formal announcement has been withheld until compatibility, stability and reliability could be guaranteed with different operating systems such as UNIX, PICK, and Novell. Contact: Micro Simplex, Inc., 10 McLaren, Suite E, Irvine, CA 92718. (714)588-1173.

RAIN OR SHINE, ACMA DELIVERS

The California-based mail order computer manufacturer Acma Computers, Inc. recently announced two new 486 computer systems. Their high-end version comes with 128K cache for $5,295. The 64K version with similar performance, but with fewer features, lists for $4,995.

Standard on both Acma 25MHz 486 systems are 4Mb of RAM, built-in math coprocessor, 150Mb EDSI hard disk drive, 1.2Mb and 1.44Mb floppy drives, built-in set-up diagnostics, and enhanced 101-key keyboard. Acma Computers, Inc., 117 Fourier Ave., Fremont, CA 94539. 1-800-456-1818.

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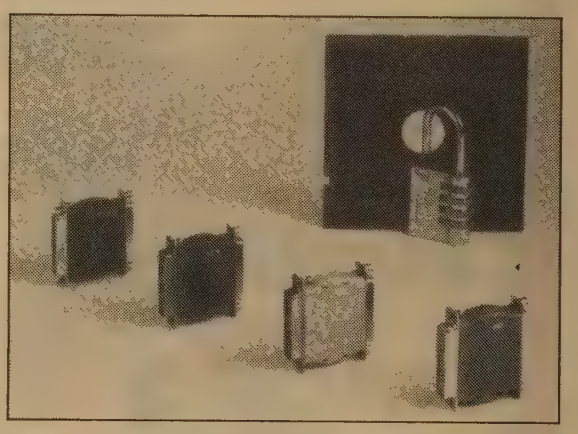
A KEY TO SOFTWARE PROTECTION

Since 1983, the French company MICROPHAR has been manufacturing and marketing software protection keys. These plug-in devices containing sophisticated random number codes that give only licensed users access to purchased programs can be updated through a diskette or modem without a special adaptor or software interface. The



system has been extended with the announcement of two new keys: one for Macintosh equipment, and another microprocessor key for computer equipment with an RS232 serial port. The keys are marketed in the US by ProTech Marketing, Inc. Contact: ProTech Marketing, Inc., 9600 J Southern Pines Blvd., Charlotte, NC 28217. (704)523-9500.

LAPTOPS THAT CAN'T WALK AWAY

Qualtec Data Products, Inc. has introduced a new anti-theft kit designed for laptop computers. The LOK-KIT 6 consists of a heavy-duty steel adhesive plate that is hinged on one end. The plate attaches to the bottom of the laptop so that the hinged edge is on the side of the computer. The braided cable threads through the hole in the hinged end of the plate and is looped around an anchoring base and secured with the provided security padlock. When not in use, the cable and padlock store in the pouch that is provided.

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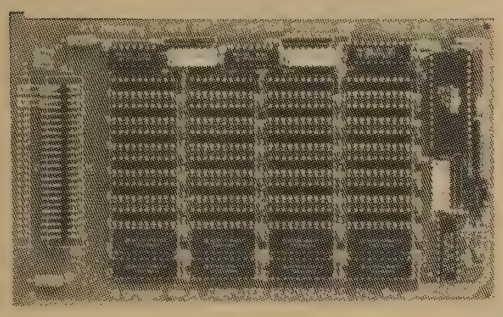

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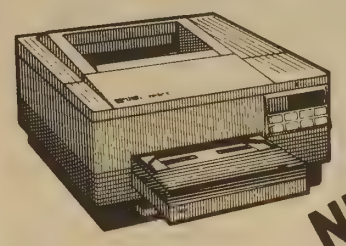

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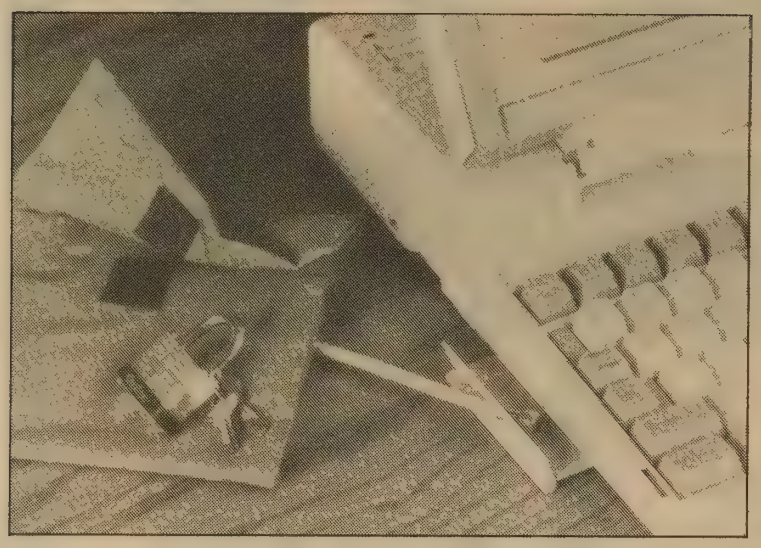
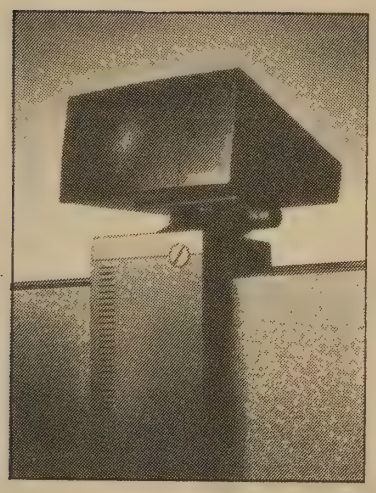


The hinged end of the plate may be folded flush with the bottom or the side of the laptop for easy transporting. Contact: Qualtec Data Products, Inc., 47767 Warm Springs Blvd., Fremont, CA 94539. (415)490-8911.

MACINTOSH PRODUCTS

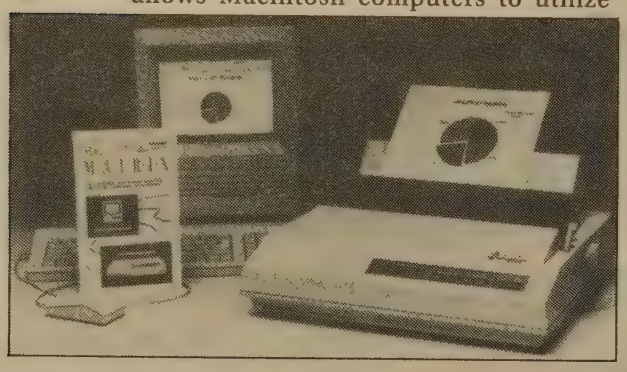
PHOTOLINK LIGHT CONDUCTIVITY

Photolink is a flexible and convenient way to connect AppleTalk/LocalTalk workgroups in open and partitioned offices. Each cluster of up to four computers or peripherals is connected to a Photolink transceiver via infrared light aimed at the same area of a ceiling or wall. Any number of workstations and Photolinks can be connected, limited only by the same considerations that apply to cabled systems. Photolink may be connected to existing cable-based systems, wide-area networks, or directly to cable for through-the-wall connections. A built-in microprocessor and proprietary error correction assures dependable data transmission. ($1195) Photonics Corp., 200 East Hacienda Ave., Campbell, CA 95008. (408)370-3033.



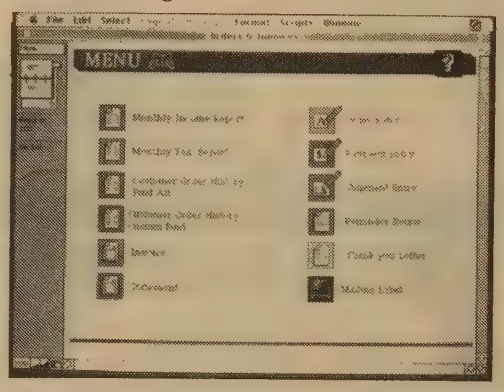
MACMATRIX JOINS TOSHIBA PRINTER WITH MACINTOSH

Toshiba's new MacMatrix software program allows Macintosh computers to utilize Toshiba's 24-pin letter-quality, high-resolution printers. The software driver comes in a kit complete with disk, cable and manual. The driver supports four scalable outline fonts, Courier, Helvetica, Symbol and Times Roman, in point sizes 6 to 127. Bit map fonts and object-oriented graphics are supported, as well as graphics resolution from 180 x 180 through 360 x 360. The only systems requirements to use MacMatrix are 1Mb RAM, at least 800K free space on the Macintosh hard disk and one of the following Toshiba 24-pin printers: the P321SL ($699); the P321SLC ($899); and the P341SL ($949). Toshiba America Information Systems, Inc., Computer Systems Division, 9740 Irvine Blvd., Irvine, CA 92718. 1-800-334-3445.



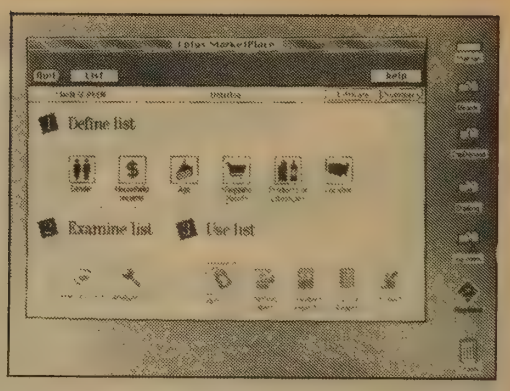
FILEMAKER GOES PRO AT CLARIS

With more than one hundred new features, FileMaker Pro adds greater solution for flexible, graphics-rich formatting and report generation, and includes a strong set of workgroup and multiuser features to significantly increase the performance of FileMaker II. Using new features from MacDraw



II and Claris CAD, database reports and forms can be designed with greater precision. For quick, precise placement of text and data fields within forms and other layouts, FileMaker Pro provides customizable gridlines and auto-alignment. The user can also create and place fields by entering their dimensions and exact location on the layout using the "Size" dialogue. The most innovative new features with FileMaker Pro are Buttons and enhancements to Scripts, to allow any of the program's or series of commands to be automated.

The suggested retail price of FileMaker Pro is $299, the same as FileMaker II. Registered owners of FileMaker II and FileMaker 4 can upgrade to FileMaker Pro for $99; registered owners of earlier versions of FileMaker can upgrade for $119. Claris Corp., 5201 Patrick Henry Dr., Box 58168, Santa Clara, CA 95052. (415)987-7000.



LOTUS BRINGS THE MARKETPLACE TO THE MAC

Lotus Development Corp. has introduced a new information product for Macintosh computers that allows anyone to perform sophisticated sales prospecting and market analysis. The Lotus MarketPlace product line includes two editions—Business and Household. Lotus MarketPlace: Business includes information on 7.5 million US businesses. The Household version consists of demographic and lifestyle data on 80 million households and 120 million consumers. Typical uses of the product include analyzing the potential of a new product, planning expansion into a new geographic area, conducting a sample survey, and defining sales territories.

Users have unlimited flexibility to view, edit and customize data before buying lists. Once satisfied with a list's characteristics, the user "buys" the list by clicking a button icon on the computer screen. Lotus MarketPlace data is updated quarterly. ($695 includes software and the purchase of the first five thousand names of choice on the disc.) Lotus Development Corp., 55 Cambridge Parkway, Cambridge, MA 02142. (617)577-8500.

FWB, INC. OFFERS MINICOMPUTER TECHNOLOGY FOR THE MACINTOSH

The Sledgehammer FMF hard drive brings minicomputer disk technology to the Macintosh desktop. Based upon the Hammer Fast Media Format (FMF) hard drives, this storage platform features fast 7 to 15 millisecond seek times and data transfer rates up to 3Mb per second. The unit is rated at 50 thousand hours MTBF. FMF series hard drives also include user-configurable high-speed RAM caches to ensure performance in demanding applications. The Sledgehammer FMF is well suited for file serving under AppleShare and Novell NetWare.

The Sledgehammer FMF provides a compact tower sub-system providing with 9Gb of on-line storage. Optional tape and DAT backup as well as an erasable optical cartridge drive can be fitted for added versatility. Optional proprietary hardware and software is available allowing non-stop operation through fault tolerant disk mirroring and disk duplexing. ($8795) FWB, Inc., 2040 Polk St., Suite 215, San Francisco, CA 94109.

continued on page 96

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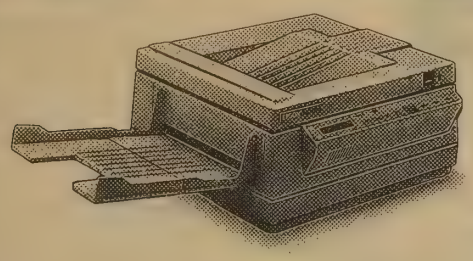

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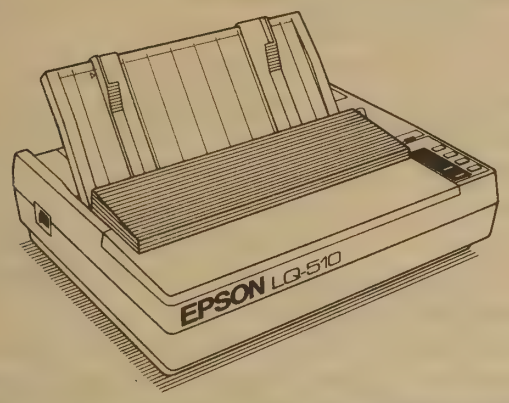

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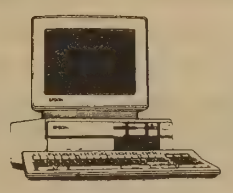

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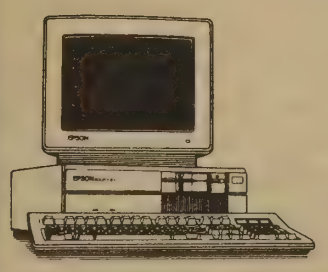

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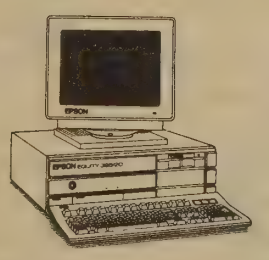

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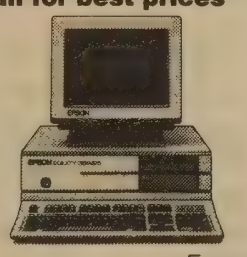

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Reviews

MS-DOS HARDWARE

I have started to search for the cards which do everything. The Boca AT I/O Plus board offers up to 4Mb of extended or expanded memory, along with a parallel and two serial ports.

BOCARAM AT I/O PLUS

For: MS-DOS machines
Manufactured By: Boca Research
Suggested Retail: $225 for OK
Reviewed By: Woody Liswood

I have run out of slots. What with bus mice, memory cards, hard drive cards, floppy drive cards, 32-bit slots, 16-bit slots, 8-bit slots, modem cards, fax cards, scanner cards, digital plotters, printers on LPT1, printers on LPT2, Modems on Com1 or Com2, plotters on Com1 or Com2, Interrupts all over the place, and memory addresses flying on the breeze, I have started to search for the cards which do everything. In that category, I found the Boca AT I/O Plus. This board offers up to 4Mb of extended or expanded memory, along with a parallel and two serial ports.

I tested the Boca AT I/O PLUS board on both an ALR 386 and a no-name 286 clone, both running at various speeds and with various motherboard memory of from 640K to 2Mb. I had no problems with any of those configurations.

The board itself comes with four banks for chips. Mine came with two banks (2Mb) of 100ns one-megabit DRAMS. I added another two megs for testing purposes with no problems. You must, however, use either two or four megabytes' worth of chips—there is no provision for one or three megs. You will also need to redo your CMOS setup to show how much memory you actually have in your system.

While there are some jumpers which you may want to set depending on how you want to use the I/O ports, most of the board's operation is software configurable and stored on the board in a EEPROM.

The documentation is concise and complete. It also has, if you need it, a reasonably lucid explanation of the differences between conventional, expanded, and extended memory. The Bocaram supports all of those types and comes with a LIM EMS 4.0 driver as well. On my 386, I just left the board assigned to extended memory, since I already had two megabytes of conventional and extended memory on board. With the other configurations, I tried various mixes of expanded and extended memory and, again, had no problems.

The board's parallel port can be set using a jumper to either LPT1 or LPT2. It can also be disabled. The normal interrupt is IRQ7. Both serial ports can be either Com1, Com2, Com3 or Com4. You can also use IRQ3, IRQ4, or no IRQ assignment. I tried various combinations of COM ports and IRQ assignments, with no problems. The CheckIt program also reported that the jumper assignments I selected were implemented as assigned. I have found, with some other I/O boards, that the IRQs were not implemented correctly, no matter at what the jumpers or DIPs were set.

An EMS driver accompanies the Bocaram board. It lets you set the amount of expanded memory you want. A RAM disk program also lets you set up to four RAM disks. One nice feature of this program is that it gives you the ability, without rebooting, to deallocate a RAM disk and regain that memory space back for program usage. A print spooling program also lets you have a efficient print spooler which works with the expanded memory driver. Lastly, a diagnostic program works out the Bocaram board and tells you if you have any problems. One great feature of the test program is that, if it finds a problem with a memory chip, it tells you exactly which one it is.

Other programs which come with the board are an emulated expanded memory manager which has an explanation in the documentation, but which I could find no use for. An expanded memory status program tells you what you are doing; a configuration clearing program erases the EEPROM configuration should you want to move the board from one machine to another; an advanced installation program is available for those types who like to customize memory page settings and fine tune the Bocaram's performance; there's even a zero wait state driver if your machine can handle it.

All in all, a nice piece of work.(Boca Research, Inc., 6401 Congress Ave., Boca Raton, FL 33487-2841, 407/997-6227)

FAX96 FAX BOARD

For: MS-DOS machines
Manufactures By: Fremont Communications Co.
Suggested Retail: $195
Reviewed By: Birrell Walsh

You've seen the ads that say "This is as low as Fax can get," with the guy lying on his side. I was intrigued, so I got in touch with Fremont Communications and got one of their $195 FAX96 boards. I've tried it. It's good. How do they sell it so cheap?

The board transmits and receives CCITT Group III faxes at 9600 baud. It will display the incoming fax on your screen so you can dump it if it is junk fax. It will monitor your phone in the background while you use another application, and take over the computer if it detects an incoming fax.

You can print the fax on your printer, and if you have a laser printer you get a better-looking product than most fax machines produce. FAX96 will convert ASCII, TIFF (Uncompressed, Packed or CCITT) and PCX files for transmission. You can use a cover letter or not, as you choose. Incoming faxes are stored on your disk unless you delete them.

The card comes with a thorough, fun manual, so you can get it running with minimal grief. Its master screen looks a lot like a fax machine control panel. They designed it that way. "G" for "Go" usually does the right next thing.

This is a fax machine that lives in your computer. It is not a modem, although it does not interfere with my internal modem. It is also not a scanner, which most standalone fax machines have built in. If you have a scanner which produces TIFF or PCX files, you have the works. For a few bucks more, you can get OneLiner Software ($49.95) which allows a phone answering machine and FAX96 to share the same line, and FarFetchFax ($49.95) which permits the remote redirection of faxes to another phone.

The company has a decent warranty and a good attitude. How *do* they make it so cheap? (Fremont Communications Co., 46309 Warm Springs Blvd., Fremont CA 94539,415/438-5000)

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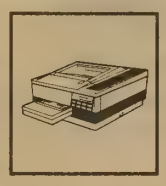

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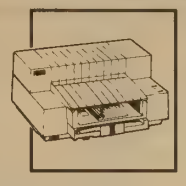

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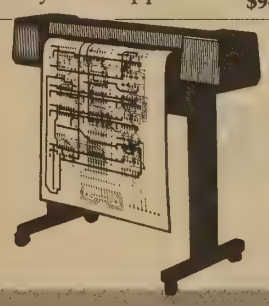

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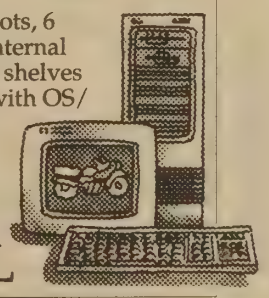

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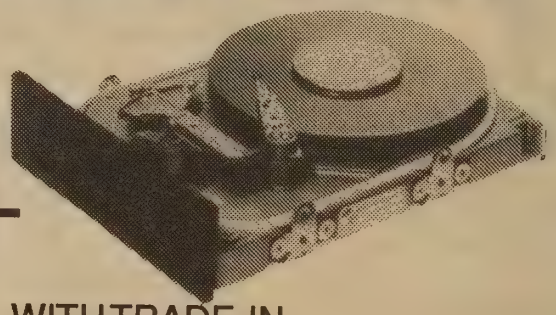

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PRODUCT SPOTLIGHT

MS-DOS SOFTWARE

Especially if your system requires a lot of programs and accessories to work with each other, CheckIt will help you keep everything running smoothly.

CHECKIT

For: MS-DOS
Published By: TouchStone Software
Suggested Retail: $149
Reviewed By: Woody Liswood

There are only a few programs I think you *must* have if you have a PC. Norton UnErase, Optune, and Backit have long been my standards, and just recently CheckIt has been added to my list. Run, don't walk, to your computer store or mailbox and get this program. You will not be sorry.

Especially if your system requires a lot of programs and accessories to work with each other, CheckIt will help you keep everything running smoothly. CheckIt looks around, checks everything—memory, ports, video, interrupts, and TSRs—to tell you what works, what doesn't, and what you might do to ensure compatibility. As you add more cards and functions to your computer, something is bound to conflict with something else—CheckIt will tell you about those conflicts and help you set up your computer so that it works properly.

CheckIt checks the configuration of your computer and tells you what you have, what the chip's BIOS set is, and what dates it finds in those chips. It tells you what the hardware interrupt (IRQ) lines are and what devices are using them; it also gives you the DMA assignments. It shows you what you have stored in your CMOS configuration and allows you to change those settings if you wish. CheckIt shows you all of your device drivers and where they are installed in memory.

The main information section shows you the version of DOS you are using, as well as who manufactured your BIOS and what the BIOS date is. You will know the type of processor and coprocessor you have. CheckIt also tells you how much base, expanded, and extended memory you have. Along with the type of video adapter you have, CheckIt shows you the video address it uses. The hard and floppy drive types are shown, as well as the parallel and serial ports and what addresses they are assigned.

When you look at the Interrupt Screen, each IRQ is listed along with the device assigned to it. If more than one device is assigned to the same interrupt, both are listed. This screen also shows the DMA assignments and lists each device assigned to a DMA channel. The CMOS screen shows the information shown in the CMOS table as well as the complete information about your hard drive including type, cylinders, heads, sectors, precompression, landing, and size. The Device Driver screen shows both segment and offset for each device as it was assigned by DOS.

A test menu tests virtually everything you can have inserted in or attached to your computer, including laser printers. The memory test will even tell you what chip is bad. There are standard hard and floppy tests, as well as coprocessor, DMA and interrupt chip tests. Both serial and parallel ports can be tested even if you don't have a loopback device. There are printer tests specifically for Epson, IBM and HP LaserJet printers, as well as a generic printer test. The video tests include all video pages and

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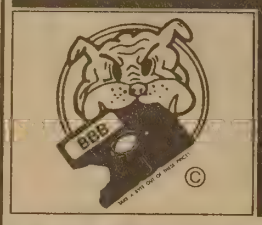

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display modes. Input Device tests include three different keyboards, as well as a mouse and a joystick test.

Since I am always testing different equipment, I found the performance benchmark tests quite interesting. I found that my Video 7 VGA board was the fastest device I had—even faster than the NEC graphic engine board. CheckIt also told me that even though I have a 20 MHz system, it was running at only about 18.5 MHz of real speed.

A tools section lets you locate the exact physical position of a bad RAM chip, set the CMOS or Real Time clock. There is also a low level format for a hard disk for 286 and 386 machines.

I could not find anything that didn't work with this program. It may not be for everyone, but if you have a heavily loaded system, you may need CheckIt to ensure that everything is working with everything else. If you are responsible for someone else's computer, CheckIt is invaluable in diagnosing everything and anything that might go wrong. One of the most important programs in my library.(TouchStone Software Corp., 909 Electric Ave,, Seal Beach, CA 90740, 213/598-7746.)

EYE RELIEF

For: MS-DOS
Published By: SkiSoft
Suggested Retail: $295
Reviewed By: Birrell Walsh

Eye Relief is a large-print word-processor.

Why a large-print word processor? The user who has bad vision needs a large print screen. But there are other uses. We originally got the product to facilitate meetings for the University of California Adult Onset of Deafness project. It makes it possible for many people to see what has been typed, so by turning the monitor to face the crowd you get real-time captioning. A large-print word processor also makes a difficult-to-see laptop screen a joy to write on, even in bad light. Then there are teleprompters for broadcasting. Or middle-aged eyes that would like the print just a little larger...

Eye Relief received two awards in 1990 from the Software Publishing Association because it has been very carefully designed. It has five type sizes, from tiny to JUMBO. These are not jaggy expansions of the basic screen font. Each has its own font, so the screen looks good at each type-size. You can adjust the space between letters, independent of the size of the characters. This feature is especially important to people with macular degeneration, the most common of visual impairments.

Eye Relief has all the basic word-processing functions available, from drop-down menus or control keys. You also have word-count, a sadly rare feature that authors really need.

Printing is elementary. Eye Relief files are ASCII files. The advantage is that they are easy to move to publishing packages or to send by modem. The disadvantage is that you have little formatting within the program. If you have an HP compatible LaserJet, you can print in an 18 point as well as a 12 point type-face.

The manual is in large print and complete. SkiSoft is flexible and helpful in adapting its product to special needs. (SkiSoft Inc., 1644 Massachusetts Ave., Suite 79, Lexington, MA 02173)

INFO SELECT

For: MS-DOS
Published By: Micro Logic
Suggested Retail: $99
Reviewed By: Birrell Walsh

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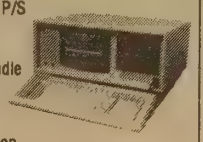

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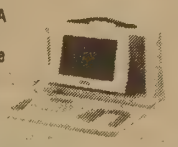

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sentence, you have five notes on the screen telling you about every transaction you have ever had with Mr. Xerxes. He's happy you remember. You're happy you sound so well-informed. You have just used Info Select, the new RAM-resident personal information manager from Micro Logic.

Info Select is descended from Tornado Notes. Like Tornado Notes, it makes a simulation of many small notes on your screen. You can enter any kind of text data into these notes, and find them quickly with Info Select's incredibly rapid retrieval system.

What makes Info Select such a useful tool is the richness, speed and simplicity of its retrieval. You find notes by typing "g" and then a word or phrase that will be in the note or notes you are looking for. Before you finish typing, the notes are there.

Info Select is like Tornado Notes with everybody's wish list included. It now has date recognition and tickler files, so you can use it for "to-do" files. It can import and export text files—goodbye to "edlin" for editing Autoexec.Bat—and import from dBASE files. It has mailmerge, autodialing, a creditable hypertext function, and an automatic display so you can use it for a self-running show-and-tell. If you are a lateral thinker, you probably like lots of pieces of information that you can rearrange in new patterns. This program lets you do it. Info Select may become a cult object.

By the way, the story about Mr. Xerxes happened to me. When I called Info Select's PR man, he had my name and address on the screen before I finished spelling my name. I was impressed. You will be too. (Micro Logic, PO Box 174,100 Second St., Hackensack, NJ 07602, 800/342-5930, 201/342-6518)

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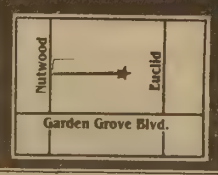

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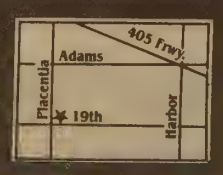

MATRIX LAYOUT

For: DOS
Published By: Matrix Software
Suggested Retail: $199.95
Reviewed By: Birrell Walsh

Layout is a visually based programming system for DOS. You pull down menus and choose functions to include in your flowchart. You can use the functions that Matrix includes or design your own "black boxes" (additional functions and procedures of any size) in any compiled language. Layout builds the program for you, displaying a current flow chart at each step.

Layout programs are graphic. They use buttons and "hot regions" to let the user navigate by mouse or tab-key. A paint program is included to design the screen and graphics. Layout uses the "card" metaphor, as in Apple's HyperCard. You can design a dBASE-exportable database in short order, and include graphics and cross-linking. It produces compiled, fast programs, or it will give you commented C and Pascal source code.

"The Power to Create Your Own Program Without Programming." That is the claim, but it is somewhat misleading. You must be able to think in the sequence-branch-loop pattern to use Layout. Layout's documentation is friendly but (alas) incomplete. You can usually figure out how to make things happen if you have programming experience. Otherwise you will freeze up solid when you are confronted with "The result of opening a window" in one of Layout's dialog boxes.

Because you can design your own "black boxes," Layout is infinitely extensible. Matrix has database and telecommunication black-boxes for sale. Third-party support is likely in the future. Layout is good for prototyping,

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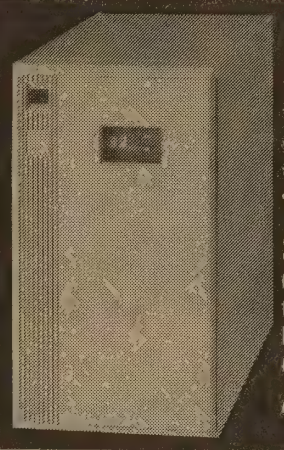

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Matrix Layout is an excellent tool for an intermediate programmer who wants to design graphic programs quickly and painlessly. At $200, it is a remarkable deal.

and would serve well as the official corporate development platform. It is an excellent tool for an intermediate programmer who wants to design graphic programs quickly and painlessly. At $200, it is a remarkable deal. (Matrix Software, One Massachusetts Technology Center, Harborside Dr., Boston, MA 02128, 1-617-567-0037)

PROJECT OUTLOOK

Published By: Strategic Software Planning Corporation
For: Windows
Suggested Retail: $395
Reviewed By: Woody Liswood

Real project planning has made it to the Windows environment. Project Outlook does almost everything that the up-to-date project planner needs.

You can work from a GANTT or an Outline view. You can also expand and collapse the plan using different views and filters, and easily switch between these views. Project Outlook also allows a baseline project so that changes can be compared to actual experience on both a timing and a cost basis. Project Outlook works using the CPM (Critical Path Method) rather than from a PERT basis, so if you must have PERT charts, you'll need to develop them elsewhere. Finally, Project Outlook directly imports and exports PROMIS files, so that you can communicate directly with one of the advanced systems.

Since Project Outline runs under Windows, you will probably be familiar with the menu structure. However, Project Outline uses a specialized set of icons and toolbox icons for many of the features, so you will do well to do a tutorial and keep the reference book handy as you start into the program.

The outline approach works automatically. You can use either a top-down approach, where you start with the major summary activities and then add the detail, or a bottom-up approach, where you do the details first and add the summary bars as you finalize your project. In the automatic entry mode, Project Outlook automatically assigns activity codes for you, thereby creating a WBS (Work Breakdown Structure) for you.

Project Outlook's GANTT view is really nice to work with; the value of Windows comes into play. One particularly nice feature, for me anyway, is that I can extend or decrease an activity time by double clicking on the GANTT chart bar and using the mouse pointer to move the end of the bar to the time you desire. If you want to link two tasks, you just click on one, then the other.

Project Outlook uses two separate editors to work with either the baseline plan or the actual plan. When you create a plan, you get a dialog box where you assign a Project ID, Code Name, Project Name, Creator Names, Owner Name, Manager Name, Location Name, and Contract Amounts. Also, you can assign Start Date and Deadline Dates. You can choose manual, or automatic sequencing of tasks, and use the automatic outline function. Links can be defaulted to Automatic Start to Start or Finish to Start, or none.

As you design the project, you will make extensive use of the toolbox icons. For example, you may want to add an activity. You would click on the add icon, then click on the activity that you want to create a subactivity under. This then opens a normal activity dialog box for you to enter in the activity details such as name, time and type of activity. When you click on a linking icon, you will get a dialog box to specify the predecessor and successor activity, set a lag value, if needed, and select the type of link, finish to start, start to start, or finish to finish. If you

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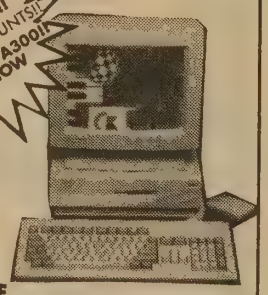

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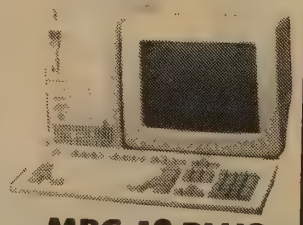

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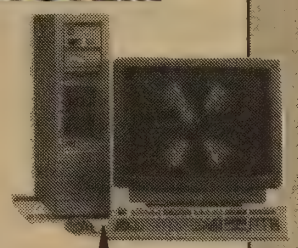

- Landmark=44 SI=31.6
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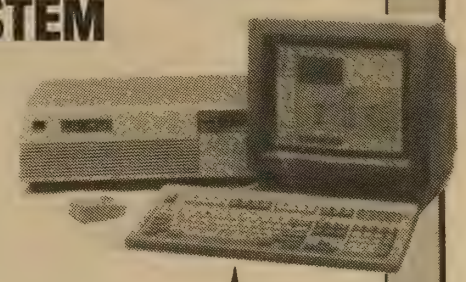

- Landmark Speed=34 SI=28
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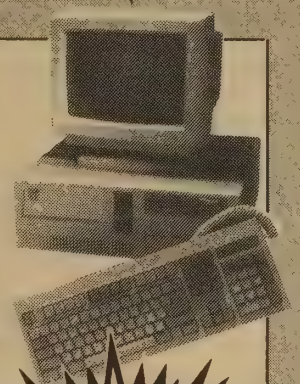

- Landmark=19.6
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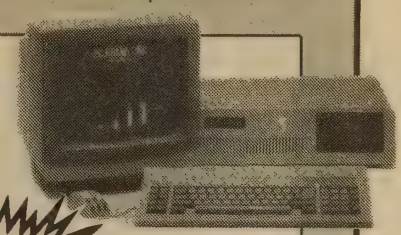

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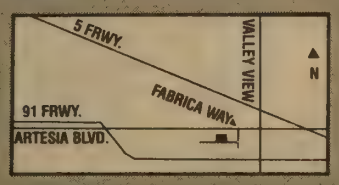

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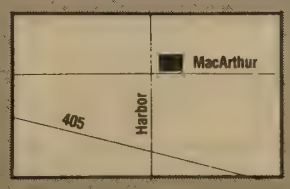

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PRODUCT SPOTLIGHT

All in all, Project Outlook is a complete and functional project planner which operates under Windows. It has all of the features you will need to plan and track most projects.

make a mistake and inadvertently create a looped link, Project Outlook displays an error message and will not let you create the loop.

As you work, you may find that you need to move things around. There are extensive cut-and-paste facilities. If you cut a link and thereby cause the activity to become completely disconnected from the rest of the project, Project Outlook assigns the project start date to the activity.

One feature I found especially useful was a trace function. You can trace any particular path through the project. Project Outlook also has a search and find facility, so that you can look for text, even search and replace.

Project Outlook's calendar function lets you show weekly, monthly, quarterly or yearly views.

There are two icons at the top of the editing screen, one for the baseline editor and one for the actual editor. When you are recording the actual results of the activities of your project, you would use the actual editor to enter the information. However, you can switch between them so you can modify the baseline as you go along, as well as continue to enter actual data. I found this to be an interesting feature, since I could modify the baseline for those activities which had not taken place yet based on the actual results of the current and past activities, and fine-tune the project plan as I went along.

You will find extensive options for printing as well as date filters. As you would expect under Windows, you have extensive control of fonts and type point sizes, as

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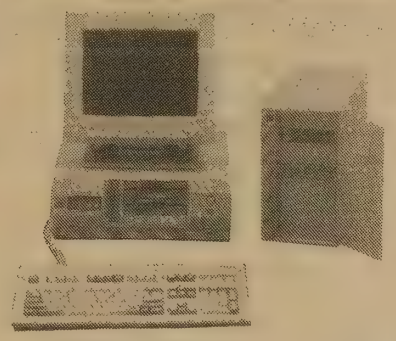

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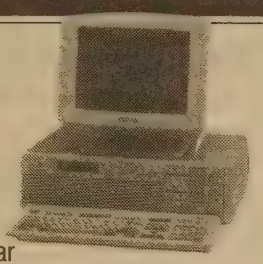

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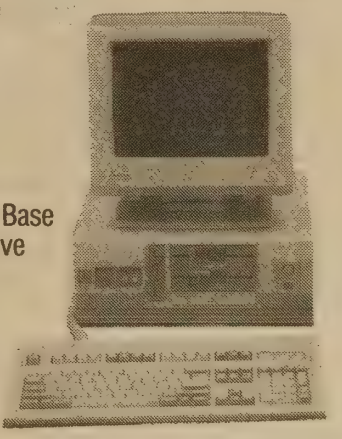

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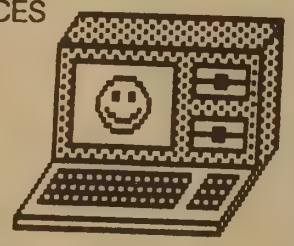

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well as the page size and orientation. I had no problems with any printing activities using a HP LJ II.

Importing and Exporting data is relatively easy. When exporting, you can create the name of the file, as well as define it as a fixed format, a delimited file or a tab delimited file.

All in all, Project Outlook is a complete and functional project planner which operates under Windows. It has all of the features you will need to plan and track most projects. It is not as complete as the DOS products such as Super Project Expert, but the ease of use and functionality under Windows go a long way in making Project Outlook effective. (Strategic Software Planning Corp., 150 Cambridge Park Dr., Cambridge, MA 02142, 617/354-1504)

MACINTOSH HARDWARE

FELIX

Manufactured By: Altra
For: Macintosh SE, SE/30, II, IIx, IIcx or IIci
List Price: $169
Reviewed By: Mike Markowitz

Now that computers have become our most important tools, a great deal of ingenuity has gone into the development of pointing devices that bridge the gap between the hand and the silicon. The opto-mechanical mouse reigns supreme on computers like the Macintosh that employ a graphic user interface.

The advantages of the mouse are easy to see. It serves equally well as a drawing tool and a menu selector. From one to three control buttons are positioned right under the user's fingers.

The disadvantages of the mouse are more subtle. You need almost a square foot of desk top for a mouse pad. The rubber ball and mechanical rollers need occasional careful cleaning. Some people with long fingernails find the mouse difficult to use. But above all, controlling the mouse uses muscles of the wrist and forearm that may not be adapted to fine movement.

Felix is a mouse alternative that uses the muscles of the thumb, index finger and middle finger, which are exquisitely adapted to precise motion. Felix plugs into the ADB (Apple Desktop Bus) port of a Mac SE or later Macintosh. The small sculptured handle rises from a flattened gray plastic case about six

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- Built-in ROM based setup
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- 80387SX math socket
- Eight (8) expansion slots

Configuration

- 1 MB 0 wait state RAM
- One 1.2 MB floppy drive
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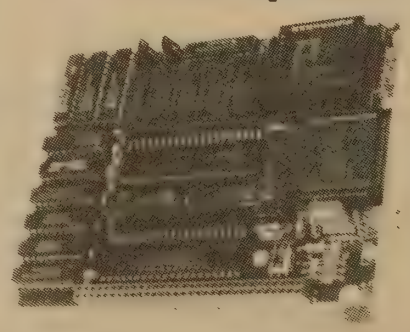

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inches square. The handle slides freely within a 1.5" square, so that a relatively small finger motion moves the cursor across a considerable distance on the screen. Your index finger rests on a black lever that serves as the mouse button, which has a light action and an audible click.

Felix was originally developed by Lightgate, Inc. which apparently went out of business. Altra bought the rights to the product and brought it to market. The technology is quite sophisticated. The handle has projections that interrupt intersecting beams of light from LED's inside the case. Sensors measure the light intensity and a microprocessor converts this information to X- and Y-coordinates. The mechanism is sealed against the entry of dirt, and never needs cleaning.

In slide-show presentations, a speaker could move around the room freely using the cordless mouse.

While a standard mouse senses relative motion, Felix maps the absolute dimensions of the screen. As a result, you must calibrate every time you restart the computer, by moving the cursor around the screen edges.

Without its special software driver Felix can emulate a standard mouse, but you need to install a small (about 21K) startup file (INIT) to enjoy the full functionality of the device. This software provides a control panel device (CDEV) that lets you remap the range of motion to a small area of the screen (1, 2, 3 or 4 inches square), and select several options.

Felix can treat multiple monitors as a single continuous space, but it provides better control when you define its range of motion as a single monitor. You can toggle between these options with a keystroke. You can also make the cursor snap directly onto the Apple Menu item when you move Felix to the left limit of travel (after first moving it to the top limit, so the microprocessor will not think that you want to snap onto the Close box of the active window). The Felix CDEV also has a "Paint/Signature" mode. Apparently this is intended to disable the Mac's standard non-linear mouse scaling, which makes the displacement of the cursor very sensitive to the velocity of your hand motion. The feature did not work properly in the current release of the Felix software.

An illustrated 22-page leaflet pro-

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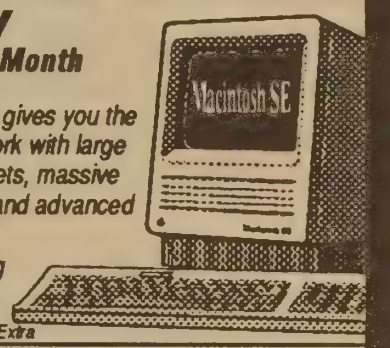

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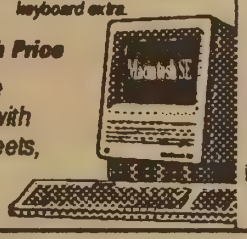

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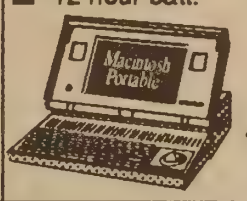

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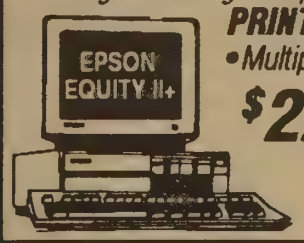

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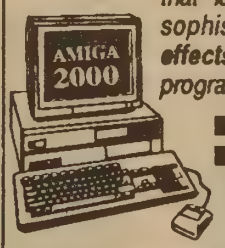

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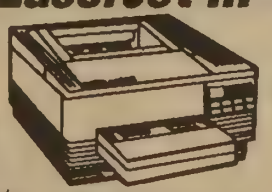

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vides clear instructions for installation and use, but the the software description was for an earlier version than what was inside the package. There is an 800 number for technical support, plus online support on AppleLink and MacNet.

The Felix technology is more reliable than the opto-mechanical mouse, and most users will find it pleasant and natural to use, after a little practice. I used the device without any difficulty on a variety of drawing and painting programs.

The Felix technology is more reliable than the opto-mechanical mouse, and most users will find it pleasant and natural to use, after a little practice. I used the device without any difficulty on a variety of drawing and painting programs. The requirement for a special software driver is worrisome—it creates the risk of potential incompatibilities. The real advantage of this device is that it could be built right into a keyboard, as a value-added enhancement. As a $169 add-on, however, it is unlikely to ever be more than a novelty. (Altra,1200 Skyline Dr., Laramie, WY 82070, 307/745-7538)

GAME REVIEWS

By Mike Markowitz

As computers get greater speed and memory, graphics attain higher resolution and richer color palettes, and programmers become more skillful and numerous, we should be on the brink of a Golden Age of computer gaming.

The hard disk alone is making for a revolution in computer games by providing scope for really large simulations. Some observers think that the next major development in games will be the integration of high quality digitized sound and voice synthesis. Some still think that interactive compact videodisc programs will become a significant market.

I think we're looking at a dead end in computer gaming unless we can make some serious breakthroughs in user interface technology. That means new hardware, and hardware cannot develop a viable market without standards.

VIRTUAL REALITY

Recently, the concept of "virtual reality" has been getting a lot of attention from simulation designers working at the high end of the technology. The idea is to place the user in a computer-generated visual, auditory and kinesthetic environment. The enabling technologies include a new generation of very tiny high-resolution displays that can be built into binocular goggles or helmets, and the VPL Dataglove, a device that covers your hand with a network of small, precise position and motion sensors. With appropriate software, a computer could display the changing 3-D scene as you move your head, including the image of your own Datagloved hand manipulating computer-generated objects. There is even a Datasuit, that does the same thing for a user's entire body. Generating and maintaining even the simplest "virtual reality" requires more computational horsepower than today's best desktop computers can deliver, but within three to five years the power will be there.

The prophet of virtual reality is novelist William Gibson (*Neuromancer, Mona Lisa Overdrive*) who has described a future network environment of Cyberspace, where users can sit at their terminals but feel that they are moving through a vast three-dimen-

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sional space in which databases are represented as tangible objects. Gibson's user interface is the ultimate in simplicity—a socket implanted in the skull and tied right in to the cerebral cortex.

THE CONTROL YOKE CONCEPT

While the technologies of virtual reality may someday provide intense multisensory hallucinatory entertainment for the masses, there is still a lot of room for short-term mechanical improvements in the computer game interface. The joystick and the mouse have served us well for many years, but for many kinds of vehicle-operator simulation they are pitifully inadequate.

This is particularly true for flight simulators. A typical modern plane is flown using a control column—something like a steering wheel that can be pushed forward or pulled back. The pilot has to coordinate turns using rudder pedals, and there is also a throttle lever for each engine. Desktop flight simulators usually have to devote nearly half the screen area to representing various controls and indicators , leaving only a limited screen window for the earth and sky. Many control functions have to be mapped to the keyboard in awkward ways that spoil the simulation's "realism" (or the willing suspension of disbelief that makes a game fun). A helicopter has two main control levers the cyclic and the collective, plus rudder pedals. Some modern fighter aircraft, like the F-16, rely on a sidestick controller, studded with switches and buttons. Tank commanders and gunners usually have simpler left- and right-hand grips.

What I envision is a unit a little smaller than a keyboard that plugs into the serial port of any computer. It would have a big central socket for a steering wheel or control column, and smaller sockets for left-and right-hand grips. Each socket would include a multi-pin electrical connector, and several strong, quick-disconnect mechanical fasteners. There would also be connectors for cables leading to two or three optional analog foot pedals, similar to those used by electric guitarists. The device would have its own signal-conditioning circuitry, maybe its own microprocessor, and perhaps even an expansion bus to allow for growth. Since some computers provide very little current through the serial port, it might need its own electric power supply, but good design might be able to avoid the necessity for plugging yet another little box into your power strip.

If the device could be standardized across the industry it could probably be mass produced for about $150, with the plug-in modules costing perhaps $50 to $75. Game software could be written to automatically sense the presence of the device, and use the appropriate drivers. Some publishers might even wish to bundle their software with an appropriate hardware module. To use your Learjet flight simulator, you would plug in the control column, and the rudder pedals. To use your F-16 simulator, you would unplug the control column and plug in the handgrip. To use your Ferrari Testarossa simulator, you would plug in a steering wheel, and a gearshift lever, and the foot pedals would function as accelerator, clutch and brake.

The details of the industry standard would have to be hammered out between the electronic engineers and the marketing wizards, but there has to be a standard. The miraculous success of the MIDI standard in electronic music proves the possibility of such a thing.

A computer game industry standard control yoke (ISCY?) will greatly increase the kinesthetic richness of the user's experience. It will make serious flight (or driving) simula-

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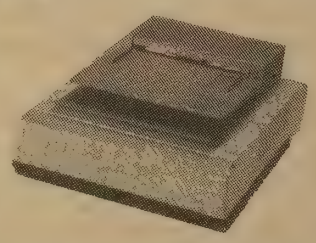

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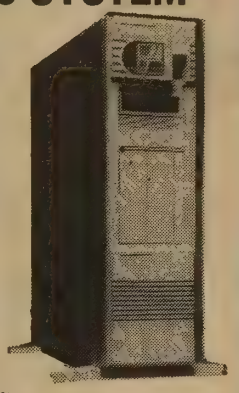

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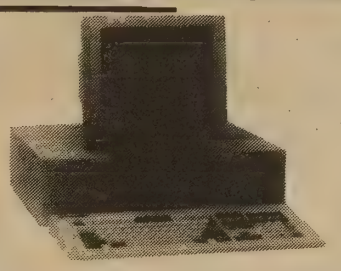

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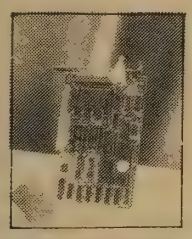

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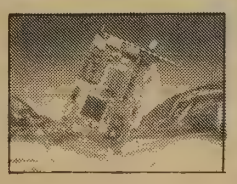

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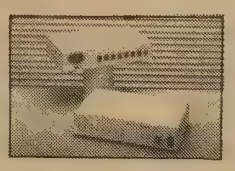

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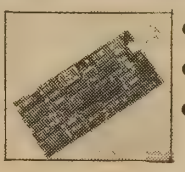

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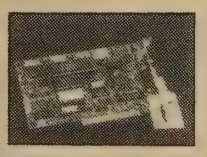

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PIPEDREAM

Published By: Lucasfilm Games
For: Mac, IBM, Amiga, Atari ST, Commodore 64
Suggested Retail: C64 $29.95; all others $39.95

I thought I wasn't going to like PipeDream. It sat on the shelf for weeks. As a product of Lucasfilm Games, it certainly came with good credentials. As a example of off-disk copy protection (one of those secret decoder wheel gadgets) it certainly deserved encouragement.

But a plumbing simulation? A race against time to lay down pipe for the inexorable slurping advance of oozing pink goo? Okay, let's give it a try. Some days, anything is preferable to writing.

This is frustrating. I can't seem to get the hang of this. What a stupid game... Oh, that's how it works. Aha! That's better. Got it!

You place sections of pipe on a square grid by clicking in any square. The pipe sections come from a relentless dispenser—you have to play each one somewhere. In the advanced game you can toggle between two dispensers.

My Significant Other, who normally hates anything that appears on the Macintosh screen, also caught the Pipe Dream addiction, actually beating my highest score repeatedly. The young have quicker reflexes, I consoled myself.

Pipe Dream is available in Macintosh, IBM PC and Amiga versions. The Mac version is well-behaved, taking up a 9" diagonal window, regardless of the size of your monitor, and restricting its color palette to black, blue and pink. It is common to describe a good game as addictive, but this one can become an obsessive, compulsive, passionate activity. Some people go for that. (Lucasfilm Games, PO Box 10307, San Rafael, CA 94912, 415/662-1902)

WELLTRIS

Published By: Spectrum Holobyte
For: IBM PC, Macintosh, Amiga
List Price: $39.95

Russia has always produced the world's finest mathematicians and chess players, so it should be no surprise to see a Russian in the ranks of world-class computer game designers. The only surprise, perhaps is that Glasnost and Perestroika are moving so quickly that a game design originated in the Soviet Union is a commercial success in the Capitalist USA, with great promise for a repeat performance.

Alexey Pajitnov, a mathematician who lives in Moscow, designed Tetris, a game of simple elegance and beautiful sophistication. Colored tiles made from different arrangements of four squares gradually drop across a narrow grid of squares. You can shift and rotate the falling tiles, with the object of filling entire rows at the bottom of the well. When a row is filled, it disappears and you gain points. If you allow a gap to develop in the bottom row, you are doomed, since the well will eventually fill up, ending the game.

Vadim Gerasimov, an 18-year-old student of Computer Informatics at Moscow University, did the original programming on a PC. Spectrum Holobyte produced successful implementations for the IBM PC, Apple II, Amiga, Macintosh and other computers, using handsome graphics depicting scenes from Soviet life.

Welltris is a three-dimensional extension of the basic idea of Tetris. You are looking down into a well or pit. The floor is an 8 x 8 square grid. On the walls of the pit, colored shapes, made up of two to six small squares, randomly appear and gradually slide downward. When they reach the floor they slide until they hit something—either the opposite wall or part of another shape. When a row or column is completely filled, it flashes and disappears, and you gain points. You must find a place for each arriving shape somewhere on the floor of the pit—if there is no room, the shape gets stuck on the wall. The wall flashes and goes dead—out of play—until three more shapes have fallen. The game ends when all four walls are out of play.

This bare description does not do justice to the hypnotic, addictive quality of Welltris. There are endless subtleties and surprises. For example, when you move a falling shape so that it "wraps" around a corner, it can break apart or crumple into a smaller shape when it hits the floor.

The strategy of the game is to fill rows or columns as quickly as possible, to rack up points and create space for newly arriving shapes. You quickly learn the tactical finesse to hustle any falling shape into precisely the right position and orientation to complete a desired pattern.

Welltris uses an inoffensive copy protection scheme—an opening screen displays the flag of one of the 16 Soviet republics, and requires you to answer a question about that republic based on information in the manual. The bouncy folk tunes that accompany the program can be turned off, and so can the sound effects. For a greater challenge, you can even turn off the "hint" window that displays the next shape that will drop. There are three levels of difficulty and five game speeds. During a game, the pace gradually accelerates as your score increases, which ensures that the game will, eventually, come to an end.

We played Welltris on a Macintosh IIcx in color, a Mac SE in black and white, and an IBM PC with CGA graphics. In every case the game was thoroughly enjoyable, although it uses only the arrow keys and the space bar—no mouse or joystick is needed. ■

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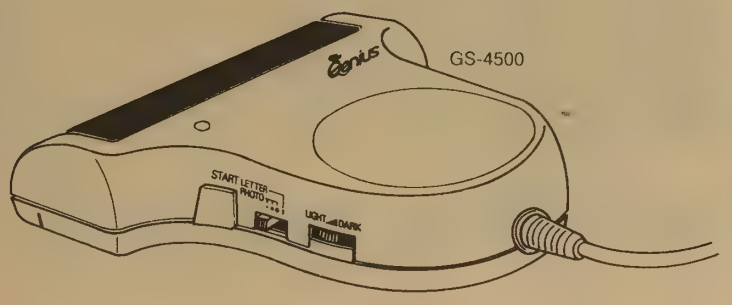

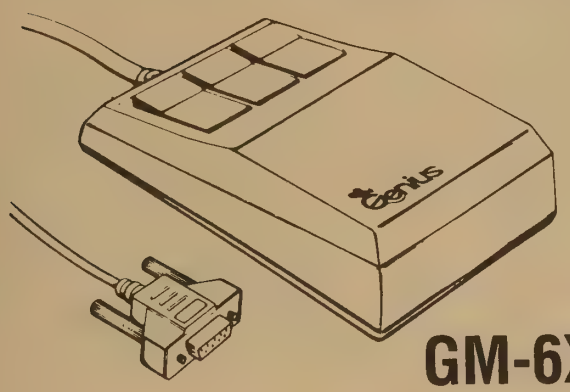

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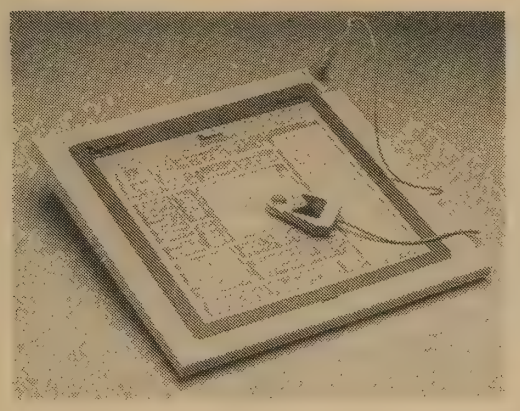

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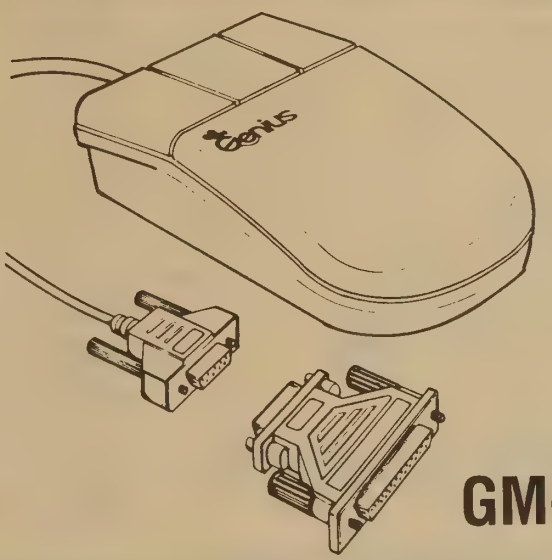

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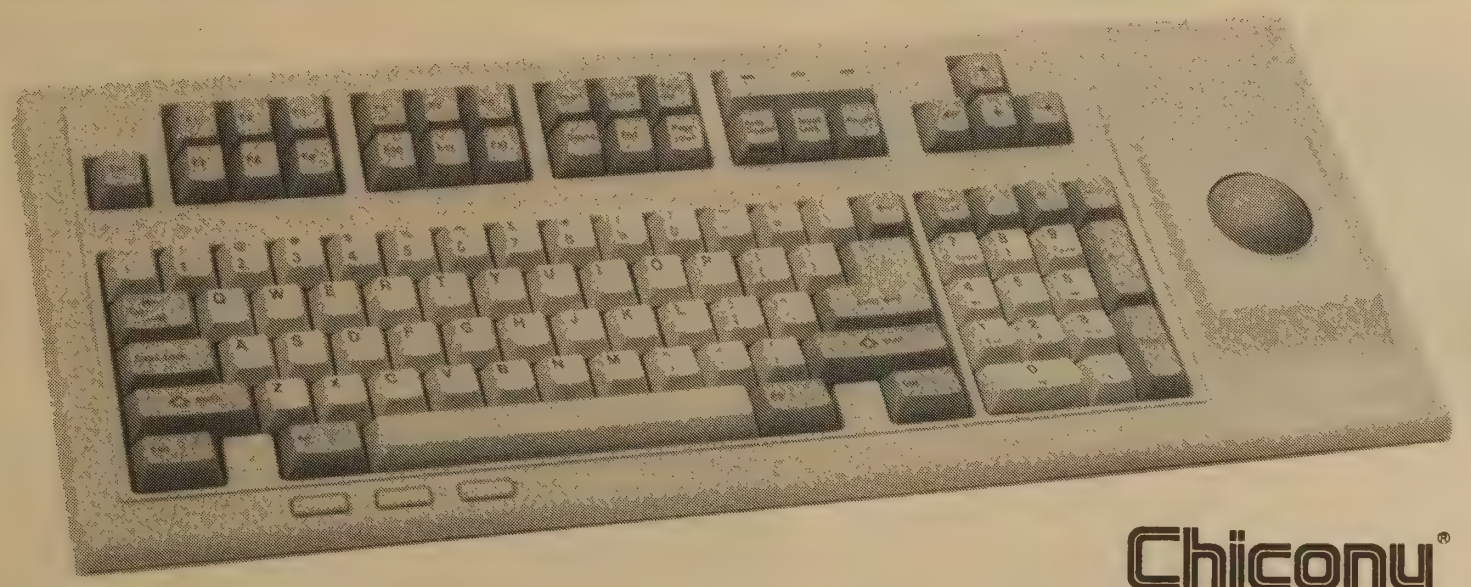

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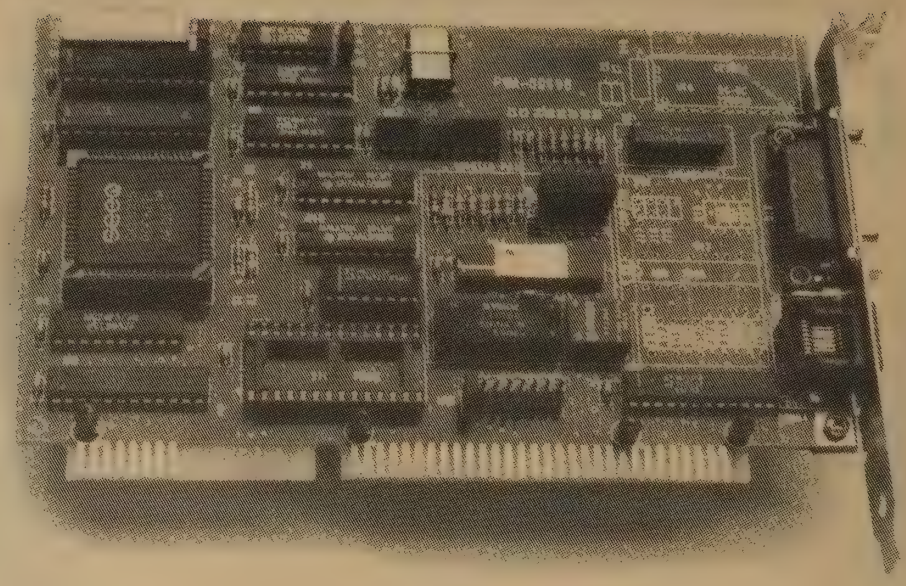
continued from page 70



QUICKIMAGE VIDEO CARD GRABS FOR THE MACINTOSH II

Mass Microsystems has released a new QuickImage 24 frame grabber card which instantly captures an NTSC (or PAL) video frame in 1/30th (or 1/25th) of a second for use in desktop publishing, technical documentation, creating published materials from videotapes or for creating special artwork effects. QuickImage 24 is compatible with all Macintosh II family computers.

QuickImage 24 accepts input from any composite or S-Video source such as video cameras, video cassette recorders, or videodisc players. It features a a preview mode which allows users to view the incoming video signal in a preview window on any monitor. The NuBus card supports 24-bit color images or 8-bit gray scale images that are converted to PICT2 format. ($995) Mass Microsystems, Inc., 550 Del Rey Ave., Sunnyvale, CA 94086. (408)522-1200.

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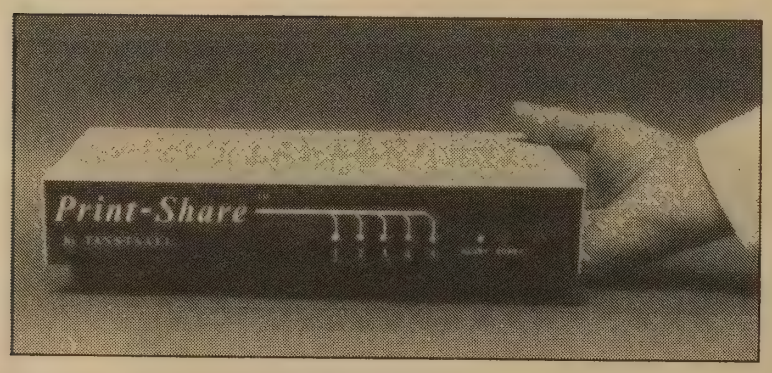


ETHERNET TWISTED PAIR ADAPTERS FROM EVEREX

"The low cost of unshielded twisted pair cabling is going to make twisted pair the most popular in-office connection," said Paul Wiele of Everex. To meet this demand, Everex has announced the release of 8-bit and 16-bit models of the SpeedLink/TP, and Ethernet adapter with standard Ethernet and twisted pair connectors.

The SpeedLink/TP features two on-board connectors, a DB-15 Ethernet connector and a RJ-45 twisted pair connector, and a 64K buffer of dual-ported, dynamic RAM that supports data transfer rates up to 10Mbps. It operates with a variety of computer clock speeds and network applications, including NetWare, PC LAN, CBIS Network-OS and LANtastic. ($449) Everex Systems, Inc., 48431 Milmont Dr., Fremont, CA 94538. (415)498-1111.

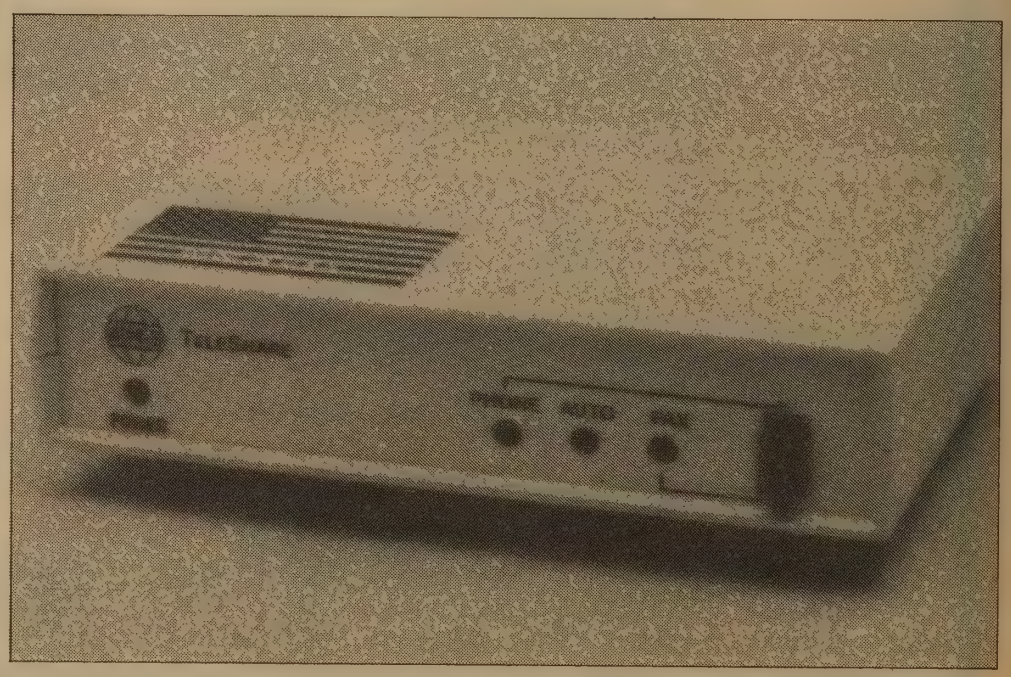
UNTANGLING VOICE/DATA COMMUNICATION

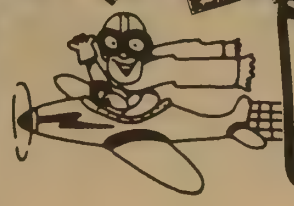
Adtech Micro Systems, Inc., Fremont-based manufacturer of communication products, has announced a new voice/data detection switch, Teleshare. This device determines whether an incoming call is a fax, modem or voice communication and routes it accordingly. Teleshare is an auto-routing device that allows the user to share a single phone line with any two other devices, such as a fax, answering machine or modem.

Teleshare complements other communication products from Adtech Micro Systems. A toll-free 800 number provides sales and technical support. Teleshare is backed by a two-year warranty. ($195) Adtech Micro Systems, Inc., 43120 Christy St., Fremont, CA 94538. (415)659-0756.

NETWORKING WITHOUT WIRES

Using advanced radio technology for PC networking applications, O'Neill Communication has announced the availability of its second generation LAWN—local area wireless network. Featuring increased network speed, an enhanced user interface and increased compatibility with third-party software, the LAWN provides peripheral sharing, email and file transfer without requiring wiring. LAWN signals transmit through walls, floors and other office obstructions. This product is seen as offering an economical PC networking alternative for small businesses and divisions within larger organizations. ($298) O'Neill Communication, Inc., 100 Thanet Circle, Princeton, NJ 08540. 1-800-624-5296. ■





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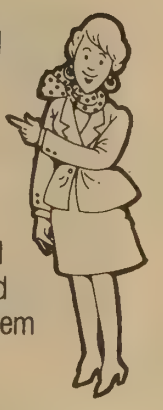

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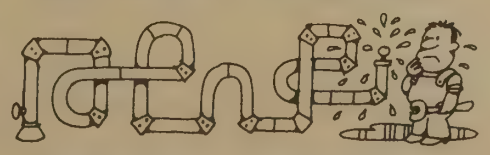

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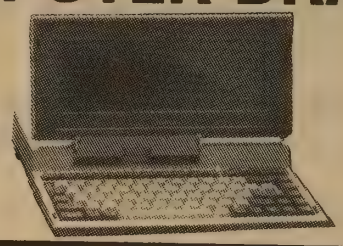

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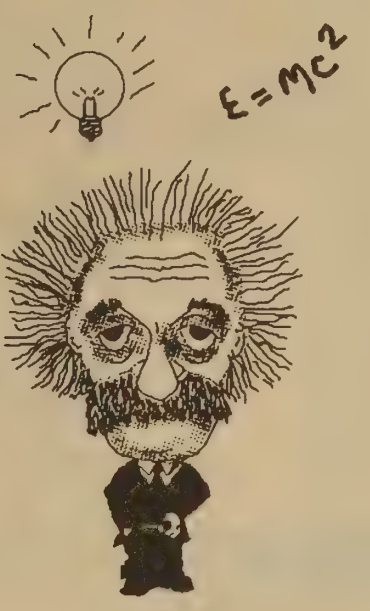

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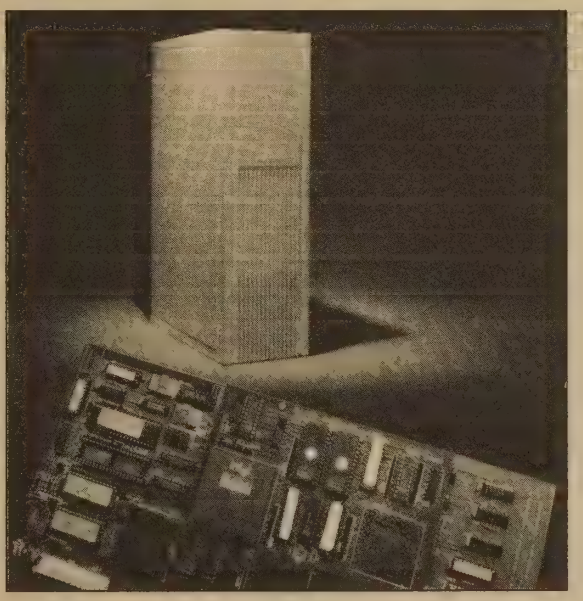

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Telecommunicating With The ST

BY DAVID HAWKINS

One of the most interesting things you can do with a computer is get it to talk to another computer—reach out and touch the world. Normally this involves getting a modem, a device that helps exchange electronic data through the phone line. (You can also hard-wire two computers together, but then they'd need to be pretty close to each other.)

ATARI ST

MODEMS

Fortunately modems and cables are easy to buy and use with the ST. Just about any new modem should work—I have three modems and they've all worked perfectly.

The main consideration is how fast a modem you want and/or need. I started with a 1200 baud modem and it was okay, but when I got a chance to move up to 2400 baud I appreciated the speed. It's possible to get good 2400 baud modems for around $100 or a little more.

The next step up in speed is 9600 baud. Unfortunately the 9600 baud modems aren't standardized yet; some of them have trouble talking to each other and some don't work well with 1200 or 2400 baud modems. Prices are a little steeper, too—around $800 and up. Personally I'm reluctant to spend more for the modem than I did for the computer.

As far as cables go—the modem port on the ST is a standard RS-232 connection. I use the same cable to connect this modem to my PC and to my ST.

Copyright © 1990 by David Hawkins. All rights reserved. *David Hawkins is the host of the Atari conference on The WELL (415/332-6106); send email to dhawk. He has one of the first Atari ST 1040s sold in San Francisco. Both monitors, an Okimate 20 color printer, and disks are all over the room.*

DO YOU NEED A TELECOMMUNICATIONS PROGRAM?

Fortunately you don't need a telecom program to telecommunicate with the ST. There's a terminal emulator built in to the standard Desktop. Change the RS-232 settings, then pull down the VT-52 emulator.

After this, whatever you type goes straight to the modem, which can then log into another system for you. For example, if you wanted to call a BBS and the phone number is 555-1234, you'd type ATDP555-1234 ("AT" gets the modem's attention; "DP" says to dial using pulse dialing, and then you type the phone number).

While it is handy to have the terminal emulator there, it's limiting at times—you can't do things like automatic dialing and file transfers. However, I've found that about 98 percent of what I do can be done with only the terminal emulator. It's especially handy when I'm in a game where there is still a Desktop bar; I can pull down the terminal emulator and use it without interupting my game.

USING TELECOMMUNICATIONS PROGRAMS

The telecomm program I use the most is Flash, $29.95 from Antic Software, 544 Second St., San Francisco, CA 94107, (800)234-7001.

It has a built-in text processor I use to compose messages before uploading them to another system. It supports VT-100 emulation, which works better on some systems. For a long time Flash's VT-100 emulation was better than anything available for any price on the PC or the Macintosh, but they're starting to catch up.

Antic also sells a program called Shadow that can do file transfers in the background while you run other programs on your ST.

Another good telecomm program is Interlink ST, $39.95 from Intersect Software, 3951 Sawyer Rd., Suite 108, Sarasota, FL 34233, (800)826-0130. I've found that people disagree about which of these two, Flash and Interlink, is easier to use. The big plus for Interlink is that it supports automatic redialing, which can be handy if you're trying to get into a busy system.

TELECOMMUNICATING

So you've got a modem and software—now what? You call another system.

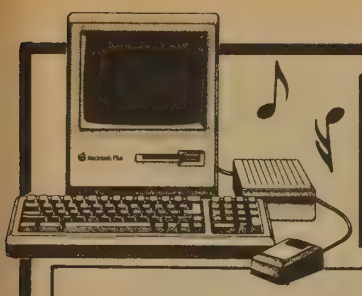
There are basically three choices here—an individual, a BBS, or a conferencing system.

If you need to get a file from your computer to Mary, you can use your modem if Mary has a modem on her computer. You get in your telecom program and call Mary's phone number; she has her modem answer the phone. You can type messages back and forth, or just go ahead and start the file transfer. This can be handy if you have different types of computers (Atari/IBM/Mac/Amiga/etc.) and need to exchange a text file. I've also had to do this when moving files from my laptop to my ST.

To call a BBS, check the listings at the back of *MicroTimes* and pick a system that has interests matching yours. You might want to call an Atari BBS to find out what the newest programs are, or get help with a game. There are programs that allow you to set up your Atari as a BBS, but you would probably want to talk to someone running an Atari board to learn how to do this.

Conferencing systems, like CompuServe and The WELL, cost money. They also have more conferences and more phone lines. For more information on these types of systems, check out John Dvorak's book, *Dvorak's Guide to PC Telecommunications.* ■

Fortunately modems and cables are easy to buy and use with the ST. The main consideration is how fast a modem you want and/or need.



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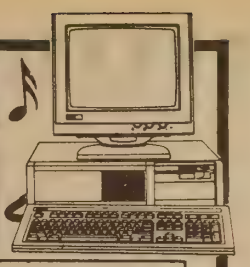

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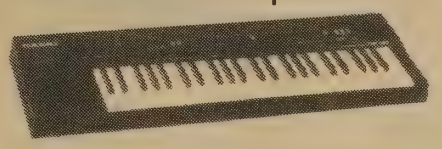

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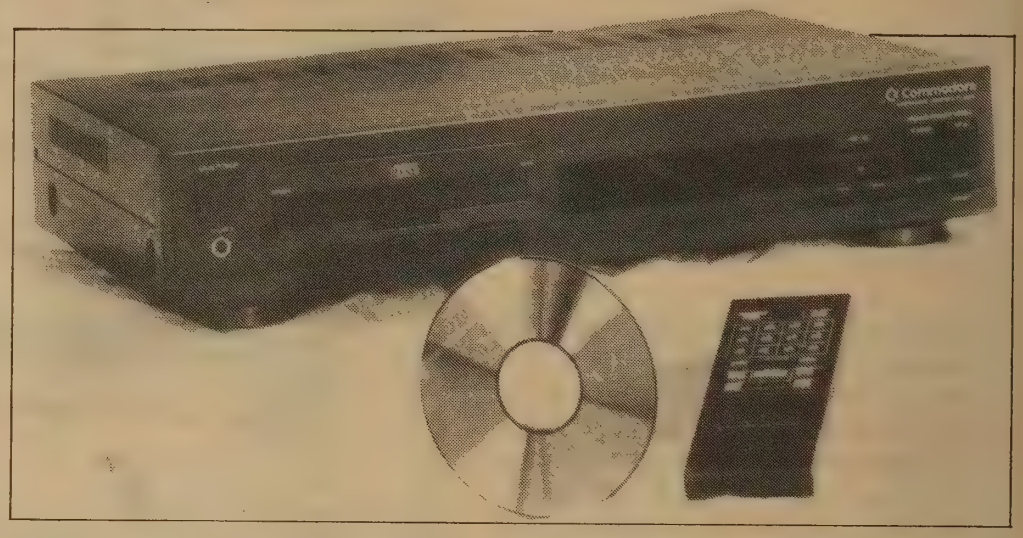
Amiga CD-ROM

The Commodore Dynamic Total Vision May Be The Machine That Defines The Home Market For The '90s

BY MATTHEW LEEDS

In a bold move to take the lead in interactive entertainment systems, Commodore took the wraps off of an impressive new machine called the Commodore Dynamic Total Vision (CDTV). In a nutshell, this is an Amiga 500 melded with a CD-ROM drive in a case that owes more to the consumer audio market than the computer market.



Code-named "The Baby," the CDTV system has been in development for several months. Commodore has been refining the concept, soliciting input from the developer community and marketing channels, and has come up with what may well define the home market for the rest of this decade.

The technical specs are impressive. Imagine an A500 with the floppy drive and keyboard eliminated, stuffed in a case the size and shape of a consumer CD-audio player. Swap the audio player for a CD-ROM drive, add a front card port (similar to a cartridge port) for a non-volatile RAM or ROM card with a capacity up to 64K, add 2K of internal non-volatile RAM for storing high game scores and personal preferences settings, lose the edge connector but add two internal slots (one for a genlock, one for a SCSI or LAN card), give it color composite video and Y/C outputs plus RF, add in headphone jacks, an infrared remote control and MIDI in/out.

AMIGA

If that's not enough, give it a full megabyte of chip memory, a very nice-looking front panel LCD display with white characters on a black field and software control over the display, built-in high speed decompression for graphics, audio and other data, an ISO 9660 file system handler, optional infrared joystick, mouse, trackball and keyboard (or hard-wired), an expansion module to house a hard drive, floppy drive, or modem, a two-player infrared interface, and give everything a slick high-tech black finish.

Copyright © 1990. All rights reserved. *Matthew Leeds has been involved in the high tech field since he blew up his bedroom playing with a children's chemistry kit. He has been using Commodore computers since 1982 and has a strong interest in photography, video, graphics, and related fields.*

Oh yes, also make sure that the CD-ROM player will also handle CD-audio, give it eight times oversampling for excellent audio specs, and add in support for the CD+G graphics subcode found on some CD-audio disks. Bundle the whole thing up, sell it through the same marketing channels as other consumer electronics products, and make certain that the list price is below $1,000.

THE CONSUMER AND CD-ROM

Impressed so far? You should be. Until now, no manufacturer has been able to make a dent in the consumer CD-ROM market. The total installed base of CD-ROM players is around 350,000, mostly in businesses using CD-ROM-based databases. Apple has gotten nowhere with their CD-ROM player, mostly because the player alone has cost consumers around $800. You still needed a Macintosh to hook it up to, and the bulk of applications available for it have been black and white compilations of data, not products for the consumer market.

Picture the average user: the CDTV system will be connected to the television and stereo system. Users will control everything via a single handheld infrared remote unit. This unit has a diamond layout four-key cursor control, two select buttons (think of left and right mouse buttons), ten function keys and a Shift key, CD-audio controls like play/pause, forward/reverse, volume and stop. They can use on-disk encyclopedias, atlases, almanacs, foreign language instruction, learning programs, and lots of high-quality entertainment software.

Most users will never realize that they have brought a computer into their home. They will never have to overcome the fear of learning to use an intimidating foreign-looking device, and will be able to expand their system by adding a real keyboard, a printer, hard disk (probably explained as just a storage device), a modem (just like the TV is connected to cable), and a genlock (titles and sound effects added to home videos).

You could dismiss CDTV as just a yuppie Nintendo clone. I suspect that would be a mistake. Both computer manufacturers and entertainment software developers initially dismissed Nintendo as just an Atari game machine clone; they were very wrong. There has been much discussion of why the Amiga has not had the success many feel it deserves, but Commodore's track record with consumer marketing of the C64 shows that they have a good idea how to handle that end of the stick.

CDTV is the first product from a new division of Commodore called Consumer Interactive Products. The newly hired general manager of this division is Nolan Bushnell, founder of Atari, Chuck E. Cheese restaurants, inventor of "Pong," and a man who has recently been involved in several startup companies working with technology that connects computers and video for the Mac. The irony here is far too obvious for most; perhaps it's only appropriate to note that the consumer computer industry is still a relatively small sandbox.

THE FUTURE: CD-ROM, CD-I, ETC.

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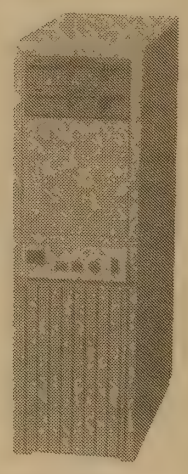

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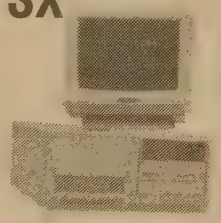

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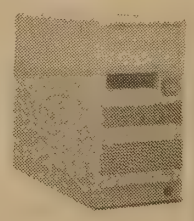

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You could dismiss CDTV as just a yuppie Nintendo clone. I suspect that would be a mistake. Both computer manufacturers and entertainment software developers initially dismissed Nintendo as just an Atari game machine clone; they were very wrong.

Commodore's chances would be to take a look at what others are doing. IBM has been rumored to be working on its own CD-ROM machine, and in fact several computer trade publications have discussed their ideas on the possible specifications for such a machine. Even Bill Gates has detailed his ideas on what a likely MS-DOS-based CD-ROM machine might contain.

There's fairly general agreement that features would include an AT-class machine with VGA display, 30Mb hard drive, 2Mb of memory, CD-ROM drive, most likely Windows 3.0, and a price point around $3,000. Tandy currently sells its model 2500 machine with similar specs and a CD-ROM drive for a similar price.

Sometime next year, Phillips, Sony, and a whole bunch of other consumer electronics companies will bring CD Interactive (CD-I) to market. To add a little historical perspective, Phillips and Sony first announced CD-I in 1986. The delays have been due to standards issues and the addition of full-motion video. Authoring tools were slow in coming and expensive, and the image quality did not match consumers' expectations. In fact, even now the display is limited to 320 x 200. Although no firm pricing has been set for CD-I players, since they are targeted at the consumer market, they're likely to be priced below $1,000.

CD-I may offer some competition for CDTV. It may be priced competitively; it will have some major players behind it, with the advertising and market penetration they can bring to the table, and it has some attractive features. However, by the time it finally arrives, Commodore may have CDTV firmly entrenched. You can look for CDTV to arrive at your local retailer this fall. ■

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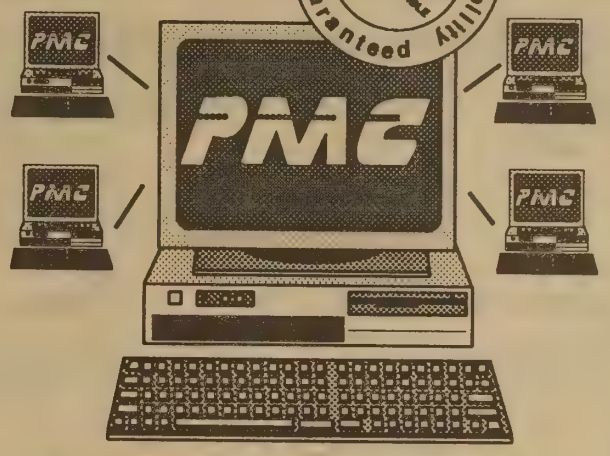

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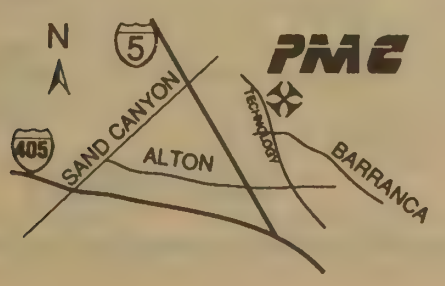

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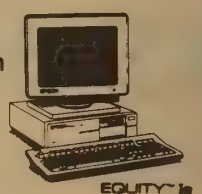

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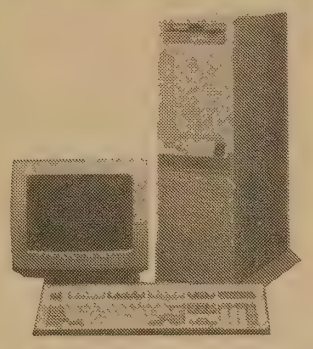

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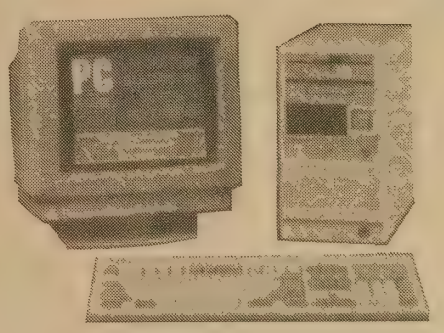

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Calendar Of Events *continued*

Extension. Call: (213)825-9064.

August 12 Computer Swap. Glendale. Richard James. Call: 1-800-433-7469.

August 14–17 C Advanced Programming & Data Structures Course. Los Angeles. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

August 14–17 Computer Graphics: Software Techniques & Hardware Components Course. Los Angeles. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

August 14–17 Computer Network Architectures & Protocols Course. Los Angeles. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

August 14–17 Multivendor Networking Course. Los Angeles. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

August 14–17 SQL: A Hands-on Workshop Course. Los Angeles. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

August 18 Computer Swap. Riverside. Richard James. Call: 1-800-433-7469.

August 18 Computer Show. Costa Mesa. Computer Marketplace. Call: 1-800-252-7927.

August 19 Computer Show & Sale. San Diego. East-West Shows. Call: (415)388-8893.

August 22–24 First Annual Macintosh Summit Conference. Santa Barbara. U.C. Extension Call: (805)961-4143 (893-4143 after August 1).

August 25 Computer Show. Pomona. Computer Marketplace. Call: 1-800-252-7927.

August 26 Computer Show. Reseda. Computer Marketplace. Call: 1-800-252-7927.

August 27–29 From Desktop To Design And Layout Workshop. Santa Barbara. UC Extension. Call: (805)961-3816.

August 29–31 Tools Of The Trade Desktop Graphics Workshop. Santa Barbara. UC Extension. Call: (805)961-3816.

SEPTEMBER

September 9 The Burbank Computer Show & Sale. Burbank. East-West Computer Shows. Call: (415)388-8893.

September 9 Computer Show & Sale. Ventura. East-West Computer Shows. Call: (415)388-8893.

September 9 Computer Show. Buena Park. Computer Marketplace. Call: 1-800-252-7927.

September 10–13 The Fifth Annual NetWorld Expo. Dallas. H.A. Bruno, Inc. Call: Annie Z. Scully or Mark Haviland, 1-800-444-3976.

September 15–18 First International Multimedia Conference. New York. MultiMedia Computing Corp. Call: 1-800-248-5474.

September 17–19 Presentations '90—Graphics & Multimedia Conference And Exposition. Long Beach. Presentations Products Magazine. Call: (617)290-0400.

September 17–20 Software Testing Course. Los Angeles. UC Extension. Call: (213)206-2815.

September 18–21 Introduction To Telecommunications Course. Los Angeles. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

September 22 Computer Show. Long Beach. Computer Marketplace. Call: 1-800-252-7927.

September 23–28 Oracle 1990 International Users Week Conference. Anaheim. Oracle Corporation. Call: 1-800-441-4684, ext. 61.

September 25–27 The Fifth Annual PC Expo. Chicago. H.A. Bruno, Inc. Call: Annie Z. Scully or Mark Haviland, 1-800-444-3976.

September 25–28 Hands-on PC Configuration And Troubleshooting Course. Los Angeles. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

September 29 Computer Show. San Diego. Computer Marketplace. Call: 1-800-252-7927. ■

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	2MB KIT	30F5360	$ 795	$ 209
55SX	1MB MODULE	6450603	$ 450	$ 129
50Z,55SX, 65SX	2MB MODULE	6450604	$ 950	$ 285
55SX,65SX	4MB MODULE	34F2933	$2,195	$ 722
50, 50Z, 55SX, 65SX	2-8MB EXP BRD w/2MB	1497259	$1,350	$ 595
	2-8MB EXP BRD w/4MB	1497259+	$2,040	$ 938
	2-8MB EXP BRD w/6MB	1497259+	$2,830	$1,201
	2-8MB EXP BRD w/8MB	1497259+	$3,620	$1,463
70-E61, 70-061, 70-121	1MB MODULE	6450603	$ 450	$ 129
	2MB MODULE	6450604	$ 950	$ 285
			*6450605 Required	
70-A21,A61, B21,B61	1MB MODULE	6450603	$ 450	$ 121
	2MB MODULE	6450604	$ 950	$ 285
	2MB MODULE	6450608	$ 950	$ 285
			*6450605 Required	
70-All Models	2-8MB EXP BRD w/2MB	6450605	$1,295	$ 439
	2-8MB EXP BRD w/4MB	6450605+	$2,890	$ 888
80-All Models	2-8MB EXP BRD w/6MB	6450605+	$4,185	$1,147
	2-8MB EXP BRD w/8MB	6450605+	$5,480	$1,406
80-041	1MB BOARD	6450375	$ 675	$ 165
80-041,071	2MB MODULE	6450372	$1,295	$ 499
80-A21,A31	4MB BOARD	6451080	$1,895	$ 694
80-All Models	1MB MODULE	6450603	$ 450	$ 129
	2MB MODULE	6450604	$ 950	$ 285
	2MB BOARD	6450379	$ 950	$ 429
	4MB MODULE	34F2933	$2,195	$ 722
			*6450605 Required	
PORTABLE P70	2MB MODULE	6450604	$ 950	$ 285
4019/E LASER PRINTER	1MB MODULE	1039136	$ 450	$ 210
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	3.5MB MODULE	1038675	$1,495	$ 516
COMPAQ				
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	4MB MODULE	113132-001	$1,950	$ 465
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	4MB KIT	108072-001	$2,550	$1,248
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	4MB BOARD	113634-001	$2,395	$ 595
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	4MB MODULE	113132-001	$1,950	$ 465
DESKPRO 386/20E,25E	1MB MODULE	113131-001	$ 450	$ 164
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	8MB MODULE	116561-001	$5,195	$2,689
PORTABLE 386	1MB KIT	107651-001	$ 650	$ 259
	4MB BOARD	107653-001	$2,395	$ 985
	4MB EXT BOARD	107654-001	$2,395	$ 985
PORTABLE III	512K KIT	107331-001	$ 269	$ 49
	2MB KIT	107332-001	$1,100	$ 159
PORTABLE LTE	512K BOARD	117077-001	$ 295	$ 197
	1MB BOARD	117081-001	$ 650	$ 248
	2MB BOARD	117081-002	$1,250	$ 399
SLT/286	1MB BOARD	110235-001	$ 650	$ 295
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IIcx	1MB KIT	MO218	$ 250	$ 76
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	4MB KIT	MO2707		$ 288
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IIfx	4MB KIT	MO376LL-A	$ 950	$ 548
	16MB KIT		$6,995	$2,685
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AST RESEARCH				
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VECTRA ES/12PC	2MB KIT	D1354A	$1,195	$ 295
HP VECTRA *Continued*				
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	4MB KIT	D1642A	$2,495	$ 583
VECTRA 486PC	2MB KIT	Two D2150A	$ 595	$ 325
	8MB KIT	Two D2151A	$2,495	$1,945
	16MB KIT			$3,993
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LASER JET IIP,III	0MB BOARD			$ 117
	1MB BOARD	H33474B	$ 485	$ 188
	2MB BOARD	H33475B	$ 890	$ 286
	3MB BOARD	H33476B		$ 359
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NEC				
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Kenny's Computer Club BBS. (213)432-0039. 8-N-1, 300/1200/2400. Word processing, database, and spreadsheets. Sysop: Kenneth Fonseca. [Exp. #73.]

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LAAUGLine. (213)387-1002. 24 hrs., 300/1200/2400. Sysop: Tom Irwin. [Exp. #73.]

LAMG (Los Angeles Macintosh Group). (213)559-MACS. 8-N-1, 24 hrs., 300/1200/2400/9600. 100 megs online of Mac Rumors, news reviews, unclassified ads, discussions, observations, testimonials, and public domain software. Sysop: Reed Hutchinson. [Exp. #73.]

Lunatic Laboratories Unlimited. (213)655-0691. 1200/2400. Cyberpunk, occult, mind-expansion, and suppressed technology information. Sysop: The Mad Alchemist. Voice: (231)658-7473. [Exp. #72.]

Lynzie's Motherboard. (213)650-0519. 8-N-1, 24 hrs., 300/1200/2400. 16 lines, group & private chat, email, 40 public forums, matching, local social events. Sysop: Lynzie Flynn. [Exp. #72.]

Midnight Express. (213)878-6700. 8-N-1, 24 hrs., 300/1200/2400. Free access, unlimited e-mail, graffiti, games, discussions. Sysop: Justin Case. [Exp. #72.]

Miracle Programmer's Oasis. (213)730-0602. 8-N-1, 24 hrs., 300/1200/2400. Structured to teach all programming languages. Sysop: Louis. [Exp. #73.]

Mt. Hollywood BBS ICN. (213)666-6937. 8-N-1, 24 hrs., 300/1200/2400/9600. Email, up/down load, echo message areas, AA-BBS. Sysop: John Jansen. [Exp. #73.]

Offworld. (213)651-5588. 24 hrs., 300–38400. VSR/HST/MNP/v.32 an electric sanctuary for social revolution. [Exp. #72.]

OS/2 BLUEzz. (213)494-6168. 8-N-1, 24 hrs., OS/2 only (i.e., no "D-word" support). Sysop: John Krogh. [Exp. #73.]

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Zog's Cavern BBS. (213)461-3872. 8-N-1, 8 pm–7 am, Mon-Sat, all day Sun, 300/1200/2400. On-line games, netmail, OS9 & Coco SIGs. Sysop: Alan Sheltra. [Exp. #72.]

619

DataByte Computer Services. (619)367-9208. 24 hrs., Wildcat, Tomcat, USR-HST, Free, DPT Graphics. Sysop: Jim Kornegay. [Exp. #76.]

The Stumps BBS. (619)367-3420. 8-N-1, 24 hrs., 300/1200/2400/9600. SVGS & VGA Graphics, util., games and more! IBM & compatibles. Sysop: Mike Brown. [Exp. #72.]

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Americom. (818)967-3108. 10:00pm–8:00am, 300/1200/2400. Multi-topic, special interest in HAM/SWL and scanners, home video/audio and medicine. [Exp. #73.]

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Cash Cow BBS (N. Orange County Computer Club). (714)962-1857. 24 hrs., 2400. 4th year of operation, specialize in business, Lotus, applications. Sysop: Vance L. Jochim. [Exp. #76.]

Color America, Inc. (818)963-3537. 8-N-1, 24 hrs., 300/1200/2400. Message board and shareware. Sysop: Dick Hagene. [Exp. #73.]

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ACCPAC & Open Systems Users Group. Meetings: 1st Tues., 7:00 pm, Irvine. Call: Bob Jaffer, (714)962-4760. Speakers and demos. [Exp. #73.]

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LAAUG—Los Angeles Amiga User Group. Meetings: 3rd Wed., 7:30 pm, Veteran's Memorial Auditorium, Overland Ave. & Culver Blvd. Many SIGs, Rookies, DTP, Video, Monthly PD disks. Call: Kip Hammond, (213)390-3010. [Exp. #76.]

ATARI

Atari Computer Association Of Orange County. Meetings: 2nd Sun., 12:30 pm, Tustin Senior Citizen's Center. Call: Rick, (714)996-8509. [Exp. #75.]

NOCCC Atari SIG. Meetings: 1st Sun., Chapman College, Wilkinson Hall, rm. 221. (714)633-4665 or 552-5185. [Exp. #75.]

APPLE

Valley Apple Computer Club. Meetings: 3rd Tues., 7:30 pm, Union Federal Savings and Loan, 7040 Sepulveda Blvd. Call: Dr. William H. Trent, (818)988-1752. [Exp. #75.]

COBOL

Micro Focus COBOL & Macola Developer/User Group. Meetings: 2nd Thurs., 7:00 pm, Torrance. Speakers, demos, tips and techniques. Call: Wilson Mar, (213)539-3050. [Exp. #76.]

COMMODORE

C128 West Commodore 128 User Group. Meetings: Free membership, no dues. Meets in Covina and Santa Monica. Call: (818)331-1589 or 892-3859. [Exp. #76.]

Commodore Technical Users Group Of Orange County—CTUG Of Orange County. Meetings: 4th Sun., 11:00 am, Murcery Savings And Loan, 1095 Irvine Blvd., Tustin. Call: Lou Palush, (714)532-1802. [Exp. #75.]

DATAFLEX

DataFlex Professionals Guild. Meetings: 1st Sat., 8:30 am, Cinesound, 915 N. Highland, Hollywood. Call: Robert Ward, (213)382-4420. [Exp. #75.]

DBASE

The dBASE Language Professional Developers Group—DLaP. Meetings: 3rd Wed., 7:30 pm, Community Room of the Westside Pavilion. Call: Therese Padilla, (213)450-4399. [Exp. #75.]

UCLA PCUG dBASE SIG. Meetings: 3rd Wed., 7:30 pm, UCLA, Franz Hall rm.1571. Call: Tom Rombouts (213)538-7108. [Exp. #75.]

Valley West dBASE Users Group. Meetings: 3rd Mon., 7:00 pm, Blue Cross of CA, 21555 Oxnard St., Woodland Hills. (818)988-6337. [Exp. #75.]

DESKTOP PUBLISHING

Southern California Ventrua Publisher User Group. Meetings: last Wed., 7:00 pm, (818)955-5830. [Exp. #75.]

EPSON

Epson User Group of Orange County. Meetings: 3rd Sat, 10:00 am, Westerm Federal Savings & Loan. Call, Bill Lafitte (714)548-1741 or 974-5072. Support, parts, library—QX, PX, Equity, VALDOCS, CP/M, MS-DOS. [Exp. #72]

San Fernando Valley & Los Angeles Epson QX User Group. Meetings: 3rd Mon., 7:30 pm, Supports QX-10, QX-16, PX-8, Valdocs, CM/P. Call: Dave Goldman, (818)717-1768 or 341-7632. [Exp. #76.]

IBM & COMPATIBLES

Color America, Inc., MS-DOS SIG. Meetings: 3rd Thurs., 7:30 pm, Charter Oak High School, 1430 E. Covina Blvd., Rm. B7, Charter Oak. Call: Bob Marvin, (714)861-2949. [Exp. #76.]

Greater South Bay Users Group. Meetings: 2nd Wed., 7:30 pm, Fellowship Hall, rear of Christ The Lutheran Church, 2706 W. 182nd St., Torrance. SIGs, BBS, newsletter, library and more. Call: Pamela Harrison, (213)373-4465. [Exp. #76.]

Long Beach IBM PC And Compatibles User Group. Meetings: 3rd Wed., 7:00 pm, Los Altos Methodist Church, 5950 E. Willow St/Woodruff Ave., Long Beach. Call: Jim Wells, (213)439-7114. [Exp. #76.]

North Orange County Computer Club (NOCCC). Meetings: 1st Sun, Chapman College. Thirty SIGs, including three on IBM, database, word processing, AI, investors, Lotus, OS/2 and graphics. Call: (714)998-8080. [Exp. #75.]

Orange Coast IBM-PC User Group. Meetings: Last Sat., 9:00 am., Orange Coast College, Costa Mesa. Call: Robin Clark, (714)843-2048. [Exp. #76.]

Orange County IBM-PC Users Group. Meetings: 2nd Tues., 7:00 pm, Computer Learning Center, 1240 S. State College Blvd., Anaheim. Call: Mike Lyons, (714)774-3236. Meetings feature guest speakers, sharing tips and problems, access to club library and newsletter. [Exp. #76.]

Pasadena IBM Users Group. Meetings: 3rd Wed. 6:30 pm, Caltech, Bridge bldg., rm 201. Call: Steve Bass, (818)795-3200. 3 hr. meetings have speakers on hardware and software topics including "tips and tricks," "stump the stars" and vendor demonstrations. Includes group library, newsletter, SIGs and BBS. [Exp. #76.]

South Orange County Computer Club (SOCCC). (714)554-1709. [Exp. #75.]

SWPC User Group. Meetings: 3rd Sat., mornings, various places. Call: Christine Tripp, (213)935-4105. [Exp. #76.]

KAYPRO

KAYOS Kapro User Group. Meetings: Last Mon. of even months, 6:30 pm, El Segundo. Call: Margot, (213)379-8339. [Exp. #76.]

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West Los Angeles Kapro User Group. Meetings: 3rd Tues. of odd months, 6:30 pm, Mar Vista. Call: Barry, (213)390-3851. [Exp. #76.]

LOTUS & BUSINESS

Lotus and Business SIG. Meetings: 1st Sun. (verify at (718)998-8080) 11:15 am., Chapman College, City of Orange, Hashinger Hall. Call: Vance Jochim, (714)962-2517. SIG of 1200-member N. Orange County Computer Club. [Exp. #76.]

MACINTOSH

Pomona Valley 99ers. Meetings: 2nd Mon., 7:00 pm, First Federal, 9900 Central Ave. Call: Bill Harms, (714)628-1334. [Exp. #70]

San Gabriel Valley Mac Users Group. Meetings: 1st Thurs., 7:30 pm, 285 E. Walnut, Pasadena Central Library Auditorium. Call: Char Rice, (213)684-4266. [Exp. #76.]

SBAMUG—South Bay Apple Mac User Group. Meetings: last Wed., 7:30 pm, Pacific School, 1214 Pacific Ave., Manhattan Beach. (213)316-7738. [Exp. #75.]

Whittier Area Mac Users Group. Meetings: 2nd Sat., 10:00 am, 11818 S. La Mirada Blvd., Granada Heights, Friends Church, rm C-21. Call: Char Rice, (213)947-2447. [Exp. #76.]

TEXAS INSTRUMENTS

Texas Instruments Professional Computer Users Group. Meetings: 4th Thur., 55 Temescal Ter., San Francisco. Call: Thor, (415)386-5237 or Steve, (415)968-9543. [Exp. #75.]

THEOS

THEOS User Group. Meetings: Call: Fred Bellemy, (805)965-0265. [Exp. #76.]

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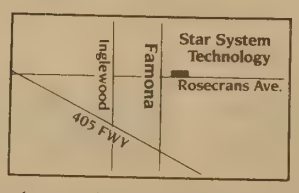

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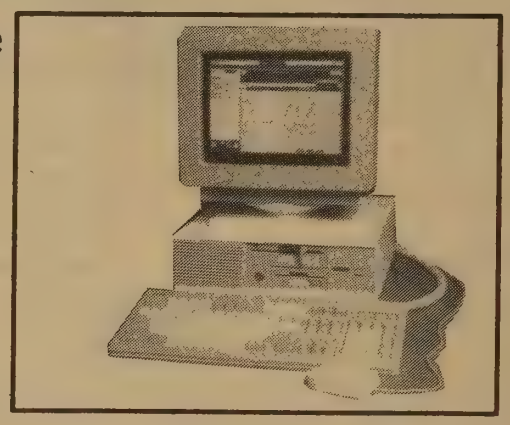

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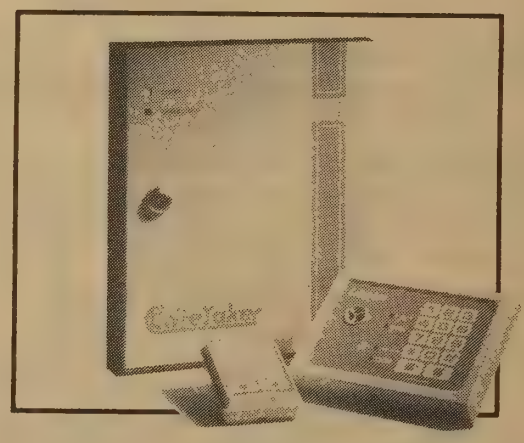

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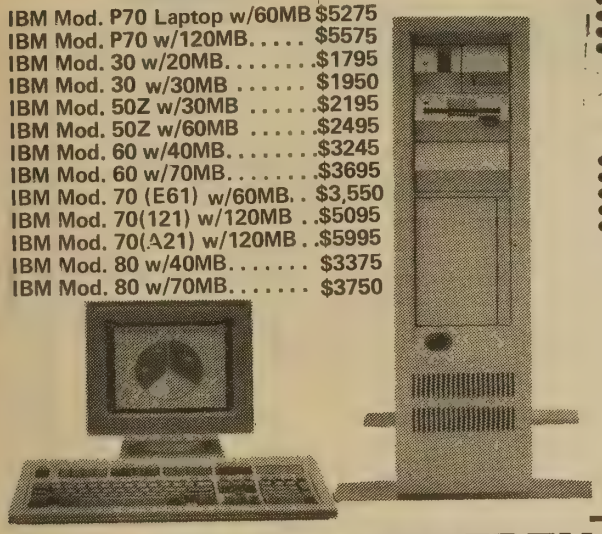

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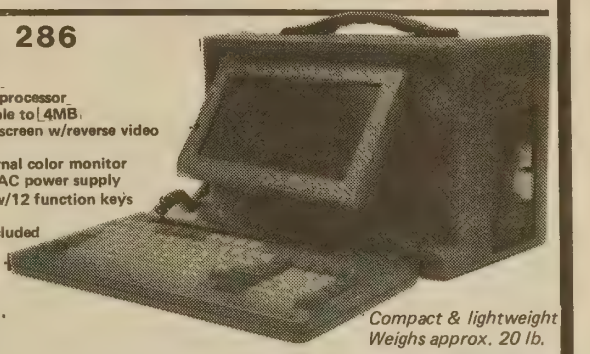

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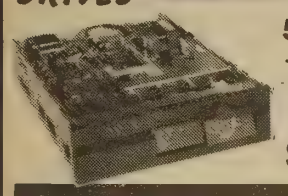

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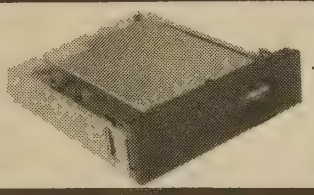

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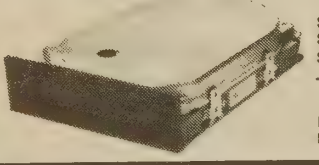

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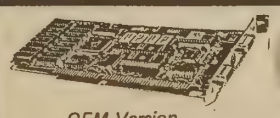

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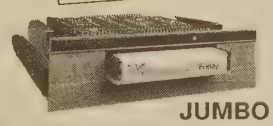

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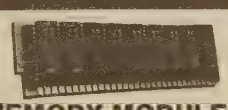

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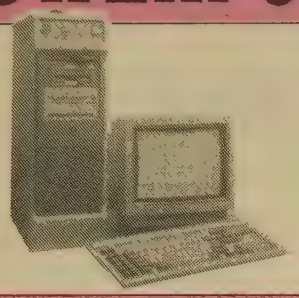

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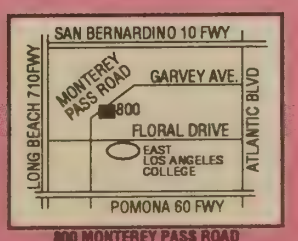

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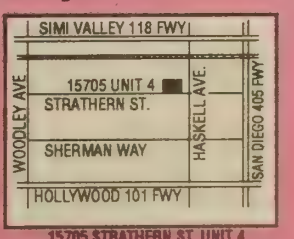

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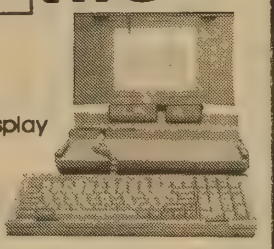

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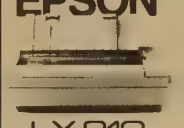

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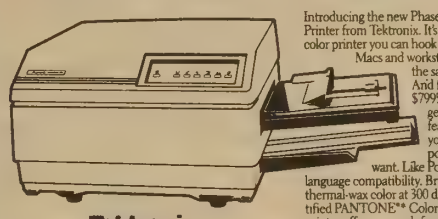

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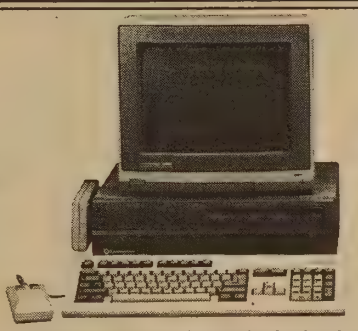

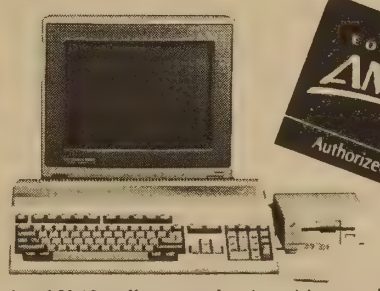

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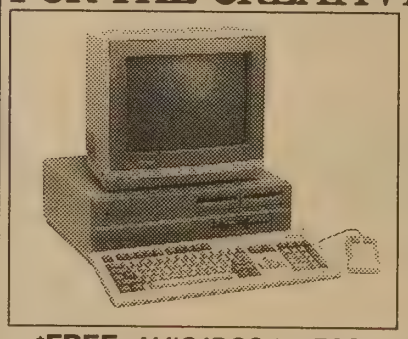

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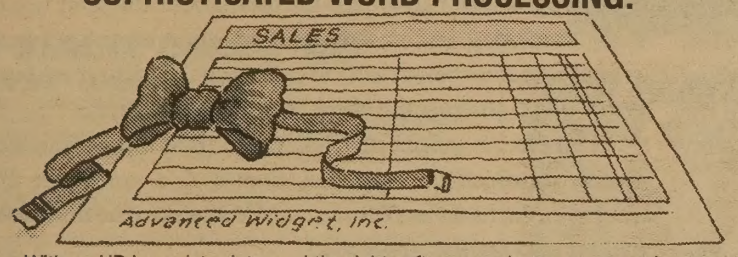

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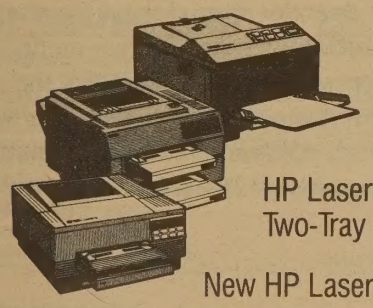

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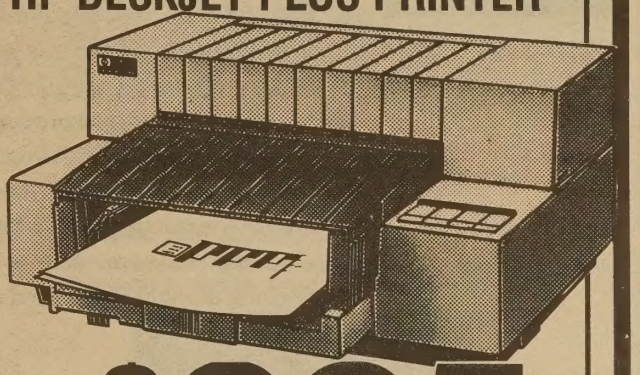

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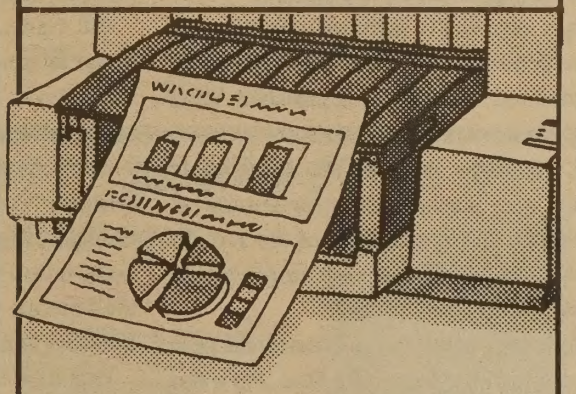

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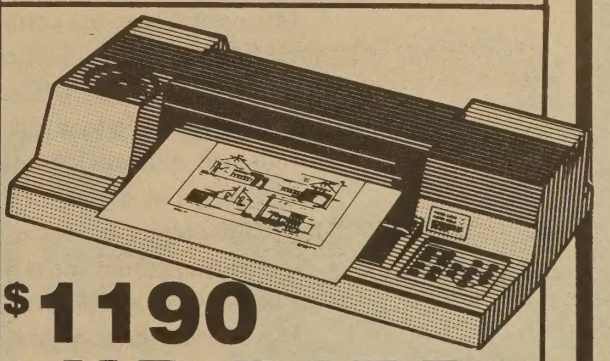

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All The News That's Fit To Print And What I Think Of It

Somebody Has To Be A Skeptic Nowadays

BY JOHN C. DVORAK

As a columnist for both *PC Computing* and *PC Magazine* (among other publications), I see a tonnage of press releases, news alerts, crucial memos and other instruments of breaking news. A mountain of paper is sent from my personal office to the dump. Countless trees are killed and chopped up so some company can brag about some new product.

On top of that are the electronic memos.

What nobody gets to see (or, in this case, hear) are the snide comments I make to myself while reading the daily industry news. Here's an edited download from a typical online news briefing, with my ongoing thoughts boldfaced and in brackets.

WINDOWS 3.0 DEBUTS TODAY

At a Broadway theater in New York City and at seven other locations linked by satellite, 2,500 people will celebrate this afternoon what is widely considered the most significant new personal computer product of the year. ***[It's only May! I'm sure some fascinating new Click Art will appear before year-end. If this is it, then it looks like a slow year. If this is the best we can do this year then I'm off to Hawaii.]***

DVORAK'S LAST COLUMN

Microsoft Corp., the country's largest PC software company, is promising that its new software product—Windows 3.0—will bring the intuitive, friendly feel associated with the Macintosh to IBM machines and their look-alikes. ***[And cows can fly.]***

Although different in detail, Windows features the same basic visual design as the Macintosh, with applications represented as icons and menus that users drop down from the top of the screen. Users can jump from one task to another, with each accomplished in a different box, or window. ***[Gee, just like the Amiga!]***

John C. Dvorak graduated from the University of California. He is a contributing editor of PC Magazine *and* MacUser, *and is considered by many to epitomize the contrarian view of things—a charge that he vehemently denies. Dvorak's motto is: If you have nothing nice to say, then don't say anything at all.*

But Windows has been painfully slow to catch on. For one thing, it lacked the visual consistency and intuitive feel of the Mac. ***[So what makes 3.0 any different?]*** More importantly, other software publishers were slow to develop applications packages—such as word processing or financial analysis software—that could operate under the Windows graphical shell. ***[Gee, I wonder why? Satan!?!??]***

Microsoft is promising that all this will be different with its third installment of Windows. ***[Promises, promises.]*** The software provides a more appealing and consistent screen design, allows several different functions to run at once, and is more easily used on networks that link together many computers. ***[Sounds like an old song to me.]*** And, having religiously courted software developers, Microsoft vows several hundred applications will be available soon that will increase Windows's ease of use. ***[Will this ever end?]*** The firm even co-sponsored a study that found that PCs that employ the use of graphics are more effective tools than traditional models. ***[Uh, oh. Time to pull up the pant legs.]*** The report found that novice users guided with pictures completed 42 percent more work in a given time than their counterparts who had to type in commands. And after two days, the study concluded, text-based users had a frustration level nearly twice as high as that of their graphical colleagues. ***[Maybe these people were brain-dead. Did anyone check on that possibility?]***

For Apple, "it means they have seen their innovation lead in the market diminished," said Rick Sherlund, a computer analyst at Goldman, Sachs & Co. ***[What a crock! I wonder if he thinks the Amiga will tar and feather Apple too.]***

Paine Webber, Inc. analyst Stephen K. Smith last week downgraded his rating of Apple stock from "neutral" to "unattractive" due to Windows. ***["Unattractive?" Does this mean they have to change the color of the machine or what?]*** Smith hailed the new product as the biggest software development since the advent of 1-2-3, the spreadsheet program from Lotus Development Corp. that is among the most popular computer applications. ***[Oh brother! Is this guy actually paid American money for these assertions? Thank you, Paine Webber.]***

The next day this one came out.

MICROSOFT UNVEILS WINDOWS 3.0

Microsoft Corp., after months of speculation, has finally unveiled Windows 3.0, a significantly improved version of its graphical user interface for MS-DOS personal computers.

Bill Gates, Microsoft's 34-year-old chairman, told hundreds of financial analysts, journalists and others at a New York theater that Windows is "a major milestone in the history of the PC industry." ***[As opposed to just a plain-vanilla milestone.]***

Many analysts agree. ***[They do? How is this possible?]*** They say Windows could provide the strongest challenge yet to Apple Computer Inc.'s popular Macintosh by grafting its user-friendly operations onto PCs and compatibles—machines that are notorious for their arcane commands. ***[Arcane? Like DIR for directory? How complex can you get? It sure has me stymied. Duh.]***

Due to a new memory management system implemented in version 3.0, Windows applications are supposed to run markedly faster than before, but preliminary tests by InfoWorld shows some functions running slightly slower than in Windows 2. ***[Slower than Windows 2? How slow can you go? This is rich.]***

Microsoft has also improved the Windows graphical user interface by using a proportionally spaced system font, 3-D scroll bars and command buttons and colorful icons. The interface is similar to that used in Microsoft's OS/2 Presentation Manager. ***[Then why don't we just use OS/2?]***

❖❖❖

As you can tell, this back and forth running commentary never ends. It's my life. I just hope that when you, the reader, pick up a newspaper or magazine that you do the same thing. And always (yes, always) laugh at these financial analysts. They're a riot. ■

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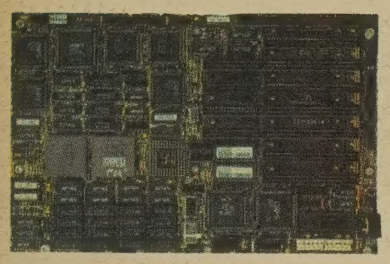

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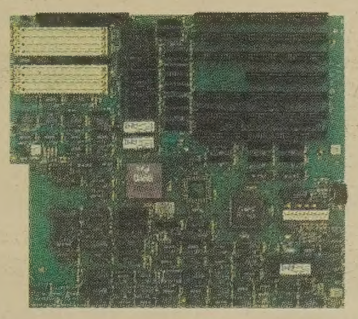

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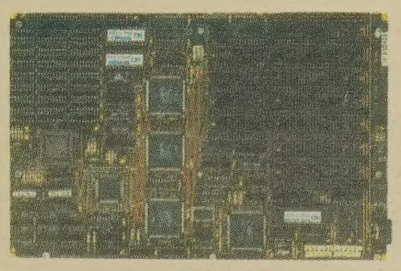

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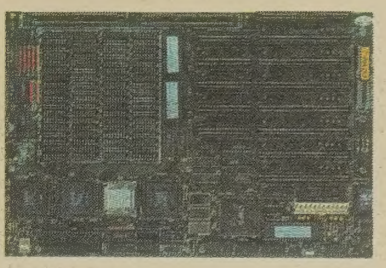

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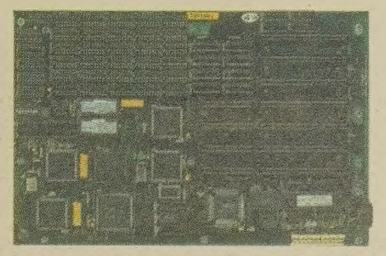

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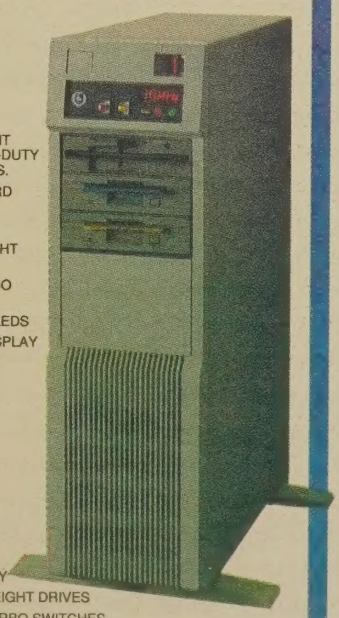

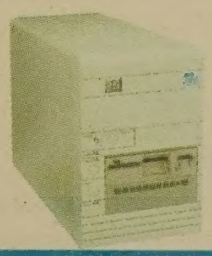

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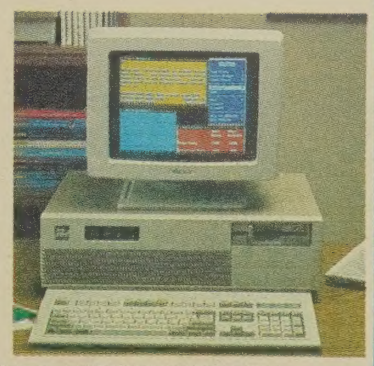

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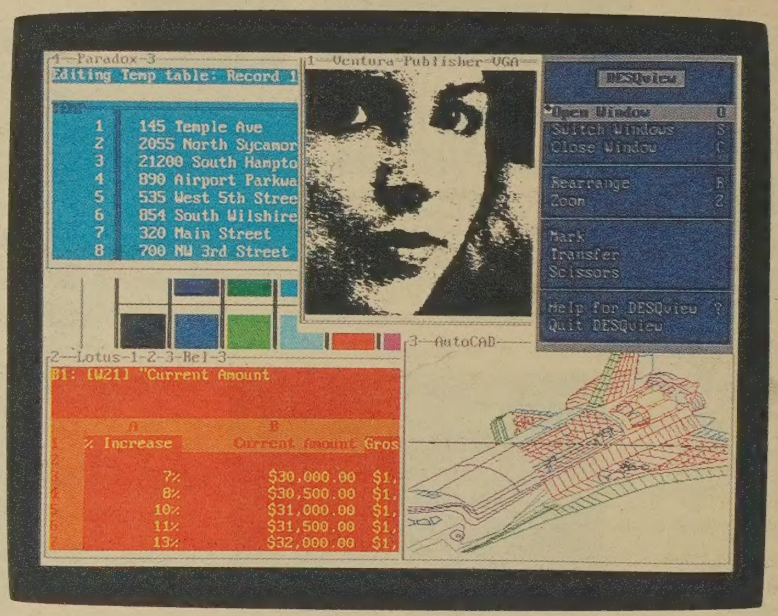

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